



ACP-2021-058

STAKEHOLDER ENGAGEMENT REPORT

Version 2.0

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VERSION #	REVISION DATE	AUTHOR	MODIFIED SECTIONS	DESCRIPTION OF CHANGES
0.1	2022/03/28	[REDACTED]		First draft
0.2	2022/04/08	[REDACTED]	Fig. 6.3; Annex D	Review
		[REDACTED]	Sec 7.2.2	Added air traffic assessment from Eurocontrol
1.0	2022/04/14	[REDACTED]		Final
2.0	2022/05/11	[REDACTED]	Fig. 6-2; Fig. 7-2,7-3,7-4; Fig. 7-5; Table 3; Par 6.3; Par 6.4; Par 7.2.1; Par 7.2.2; Par 7.3; Annex C; Annex F	Replaced; New; Replaced; Added column; Edited; Added; Added evidence; Improved description of Fig. 7-2; Completed noise analysis; Added first TDA description; Added first NATS response

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1 INTRODUCTION

HyImpulse is planning the first launch of the sounding rocket SR75 from the Saxa Vord Spaceport (Shetlands islands, UK) for September 2022. For this purpose, HyImpulse applied for an airspace change in September 2021 ([ACP-2021-058](#)) to cover this single launch activity regulated by the Air Navigation Order (ANO).

Consultation and engagement with aviation stakeholders affected by the proposed Temporary Danger Area (TDA) was conducted by HyImpulse based on the requirements of the regulator (Appendix C of [CAP-1616]). The scope of the engagement was for the sponsor (HyImpulse) to understand the need for an airspace change and how it would potentially impact stakeholders. The stakeholder engagement consisted of three parts: identifying the right audience, understanding the stakeholder needs, identifying their requirements. HyImpulse conducted these steps from January 3rd to March 18th 2022 during the so called stakeholder engagement phase. The feedback of the stakeholders in the area suggested to re-design the originally proposed TDA as well as to redefine its activation time. This report shows evidence of the stakeholder engagement and proposes a revised TDA based on the stakeholders needs.

For transparency with the stakeholders and the local communities, this report also includes the environmental assessment of the noise level (Appendix B of [CAP-1616]), as well as a reference to the analysis of air traffic within the TDA.

2 APPLICABLE AND REFERENCE DOCUMENTS

[RD-01]	HyImpulse ACP-2021-058 https://airspacechange.caa.co.uk/PublicProposalArea?pID=4
[RD-02]	HYIMPULSE Operations: Impact of airspace activation on civil traffic, Eurocontrol, April 11 th 2022
[CAP-1616]	Airspace change: Guidance on the regulatory process for changing the notified airspace design and planned and permanent redistribution of air traffic, and on providing airspace information, CAA, March 2021
[HIT-01]	HyImpulse Assessment of Environmental Effects, SIA application for launch and return operator, April 2022
[Saxa-01]	Airspace Analysis, March 2022
[Saxa-02]	Saxa Vord Assessment of Environmental Effects, SIA application for spaceport, March 2022
[Saxa-03]	Noise Study for Launch Vehicle Operations at Shetland Space Center, October 2020, Blue Ridge Research and Consulting

3 DEFINITIONS AND ABBREVIATIONS

ACP	Airspace Change Proposal
AEE	Assessment of Environmental Effects
HIT	HyImpulse Technologies GmbH, HyImpulse UK Ltd.
SR75	Sounding Rocket 75 (HyImpulse product)

ANO	Air Navigation Order
FSA	Flight Safety Analysis
TDA	Temporary Danger Area
FBZ	FPL Buffer Zone
SAR	Search and Rescue
SIA	Space Industry Act
Saxa	Saxa Vord Spaceport

4 PURPOSE OF AIRSPACE CHANGE

HyImpulse Technology GmbH is a new German space company developing small orbital launcher and sounding rockets, powered by its green hybrid propulsion technology. The company mission is to unlock the full potential of the rapidly growing satellite market by eliminating the current bottleneck to frequent, reliable, and low-cost access to space.

The SR75 sounding rocket is a single stage vehicle for microgravity experiments and atmospheric research. The in-house developed hybrid rocket motor uses paraffin and liquid oxygen and SR75 will be the first European rocket that exploits such a combination of propellants.

HyImpulse is targeting Q3 of 2022 for the first suborbital launch, and a possible entry on the market in 2023. In its first flight, SR75 will be a technology demonstrator and will be used to flight-prove the motor.

Discussions between HyImpulse and Saxa Vord Spaceport are currently on-going, foreseeing the possibility of a maiden flight from the Shetland islands. The Shetland Islands are particularly suitable from a flight safety perspective due to their geographical position and to the low volume of sea and air traffic.

This would be an important milestone for both companies and a step towards enabling access to space in Europe. Involvement by Saxa Vord Spaceport in the SR75 launch would enable it to build up operations to reach the objective of being a UK orbital vertical launch site.

This would include participation in the use of a temporary ACP to deliver Range services in support of the HyImpulse Launch.

The establishment of a suitable temporary airspace structure to the north of the Shetland Islands would allow HyImpulse rocket launch operations to safely proceed from Saxa Vord Spaceport (Unst).

HyImpulse opened the airspace change request ACP-2021-058 in September 2021.

5 STAKEHOLDER ENGAGEMENT

HyImpulse engaged with potential stakeholders from January 3rd to March 18th 2022. During this time, HyImpulse included formal consultation, information provision, meetings and discussions with the affected stakeholders. Transparency of information was the key for consultations to be effective.

5.1 OBJECTIVES

Consultation and engagement are required by the regulation [CAP1616]. The objective of the activity is establishing an ongoing engagement to help both the sponsor (HyImpulse) and the stakeholders to understand the needs of the activities and to define the context for the proposed change. The role of the stakeholders is providing constructive feedback and comments to the sponsor, especially if the business can be largely impacted by the airspace change. The role of HyImpulse as a sponsor is understanding and accommodating the needs of the stakeholders into the planned flight activities.

5.2 IDENTIFICATION OF LOCAL STAKEHOLDERS

Before starting the engagement, HyImpulse identified the suitable stakeholders based on a reference list provided by the CAA. Additionally, HyImpulse engaged with the Saxa Vord spaceport to identify potential local stakeholders in the area. The spaceport already engaged with aviation stakeholders for ACP-2017-079 and ACP-2021-090.

The selected stakeholders are not only limited to aviation but also include oil and gas, search and rescue, other business and organizations operating in the area. A point of contact was established with each stakeholder when possible.

Table 1 reports all the engaged stakeholders who provided constructive feedback upon the TDA. The color code assigned to the feedback has the following meaning:

- Green: no objection to the proposed TDA and/or HyImpulse activities in the area
- Yellow: no objection to the TDA but a communication channel should be established before and during launch activities
- Red: objection to the TDA due to high business impact

Table 1 Engaged stakeholders: response

Organization	Feedback
Jet2	Green
Airtask Group	Yellow
Bristow Helicopters - Sumburgh	Yellow
British Helicopter Association (BHA)	Green
CHC (Canadian Helicopter Corp)	Green
ERA (European Regions Airline Assoc)	Green
Flylogix	Green
HIAL Sumburgh Airport	Green
Isavia	Red
Lamba Ness Common Grazings	Green
Loganair	Green
Noordzee Helikopters Vlaanderen (NHV)	Green
Northern Lighthouse Board	Yellow
Ocean Kinetics	Green
PDG Helicopters	Green

PURE Energy Center	
Scatsta Airport	
Shetland Flyer	
2Excel Aviation	
Airfield Operators Group (AOG)	
British Airline Pilots Association (BALPA)	
British Gliding Association (BGA)	
EASA (European Union Aviation Safety Agency)	
Lockheed Martin	
Met Office	
Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)	
NATS	
CAA Norway	
Offshore Petroleum Regulator for Environment & Decommissioning (OPRED)	
Oil & Gas Authority	
Scottish Natural Heritage	
UK Research & Innovation (UKRI)	
Unst Partnership	

5.3 ADDITIONAL STAKEHOLDERS

Table 2 reports additional stakeholders that were contacted by HyImpulse only for an informative purpose. The feedback response form was included as an option. Those stakeholders providing feedback were included into Table 1. For the remaining ones, HyImpulse considered a missing reply as an acknowledgment of reading.

Table 2 Engaged stakeholders: informative only

Organization	Comment
Airspace Change Organising Group (ACOG)	Informative email
Avinor	Moved discussion to CAA Norway
Babcock Int	Informative email
British Airways	Informative email
Facility for Airborne Atmospheric Measurements (FAAM)	Informative email
GAMA Aviation	Informative email
Lerwick Port Authority	Informative email
Maritime & Coastguard Agency (MCA)	Previously informed of spaceport activities. Informative email
Navy Command (HQ)	Informative email
Shetland College/NAFC	Informative email

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Shetland Fishermen's Association	Informative email
Unst Community Council	Previously informed of spaceport activities. Informative email
A4E (Airlines for Europe)	Informative email
ADS – Aerospace, Defence, Security	Informative email
Aircraft Owners and Pilots Association (AOPA)	Informative email
Airport Operators Association (AOA)	Informative email
Airspace4All	Informative email
Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)	Informative email
Aviation Environment Federation (AEF)	Informative email
BAe Systems	Informative email
British Balloon and Airship Club (BBAC)	Informative email
British Business and General Aviation Association (BBGA)	Informative email
British Hang Gliding and Paragliding Association (BHPA)	Informative email
British Microlight Aircraft Association (BMAA) / General Aviation Safety Council (GASCo)	Informative email
British Model Flying Association (BMFA)	Informative email
British Skydiving	Informative email
British Business & General Aviation Assoc	Informative email
Drone Major	Informative email
Gen. Aviation Manufacturers and Traders Assoc (GAMTA) now (BBGA)	Informative email
General Aviation Alliance (GAA)	Informative email
General Aviation Safety Council (GASC)	Informative email
Guild of Air Pilots and Navigators (GAPAN)	Informative email
Guild of Air Traffic Control Officers (GATCO)	Informative email
Helicopter Club of Great Britain (HCGB)	Informative email
Honourable Company of Air Pilots (HCAP)	Informative email
Iceland - Government	Informative email
ICETRA	Informative email
Iprosurv	Informative email
Isle of Man CAA	Informative email
Large Model Association (LMA)	Informative email
Light Aircraft Assoc. (LAA)	Informative email
EasyJet	Informative email
Military Aviation Authority (MAA)	Informative email
MSP	Informative email
NERC	Informative email

Police Scotland	Previously informed of spaceport activities. Informative email
PPL/IR (Europe)	Informative email
RNLI	Informative email
Royal Aero Club (RAeC)	Informative email
Scottish Ambulance Service	Previously informed of spaceport activities. Informative email
Shetland Islands Council	Previously informed of spaceport activities. Informative email
Skyrora	Informative email
UK Airprox Board (UKAB)	Informative email
UK Flight Safety Committee (UKFSC)	Informative email
United States Air Force Europe (3rd Air Force-Directorate of Flying (USAFE (3rd AF-DOF))	Informative email
Oil & Gas UK (OGUK)	Informative email

5.4 COMMUNICATION CHANNELS

HyImpulse used emails as primary communication channel. In addition, a couple of meetings among CAA, NATS, Eurocontrol and HyImpulse were held to discuss the boundaries and the activation time of the TDA.

5.5 ENGAGEMENT MATERIAL

The email templates are reported in ANNEX A. A standard email was sent to all stakeholders at the beginning of January 2022, describing the TDA as in Section 6.1. The original deadline for the stakeholder engagement was set to February 28th 2022.

A first follow up email was sent after three weeks, excluding the stakeholders who already provided feedback (end of January 2022).

The second follow up email was sent to the original stakeholder list by the middle of February 2022 because it contained two major changes:

- An update of the TDA shape and activation time (as for Section 6.3)
- The extension of the response deadline to March 18th 2022

At the end of the engagement, all stakeholders were contacted at least two times (for the original TDA proposal and the updated TDA).

The engagement response form is reported in ANNEX B.

6 ANALYSIS OF STAKEHOLDERS FEEDBACK

6.1 TDA PROPOSALS BEFORE ENGAGEMENT

The TDA proposed in January 2022 impacted the following Flight Information Regions (FIRs):

- BIRD - Iceland – Reykjavik Area Control Centre (ACC)
- ENOR - Norway – Polaris ACC
- EGPX - UK – Scottish Centre

The stakeholders were provided with the coordinates for the TDA and the visual representation of Figure 6-1 (ANNEX C.). The TDA extended up 100 km north of Shetland Islands (from 330° to 030°). The notification period was set to 90 days starting from July 2022. It was planned to activate the TDA via NOTAM and keep it active for 72 hours to cover the launch operations. Launch operations were planned to be executed during daylight time, preferably around 12.00 pm.

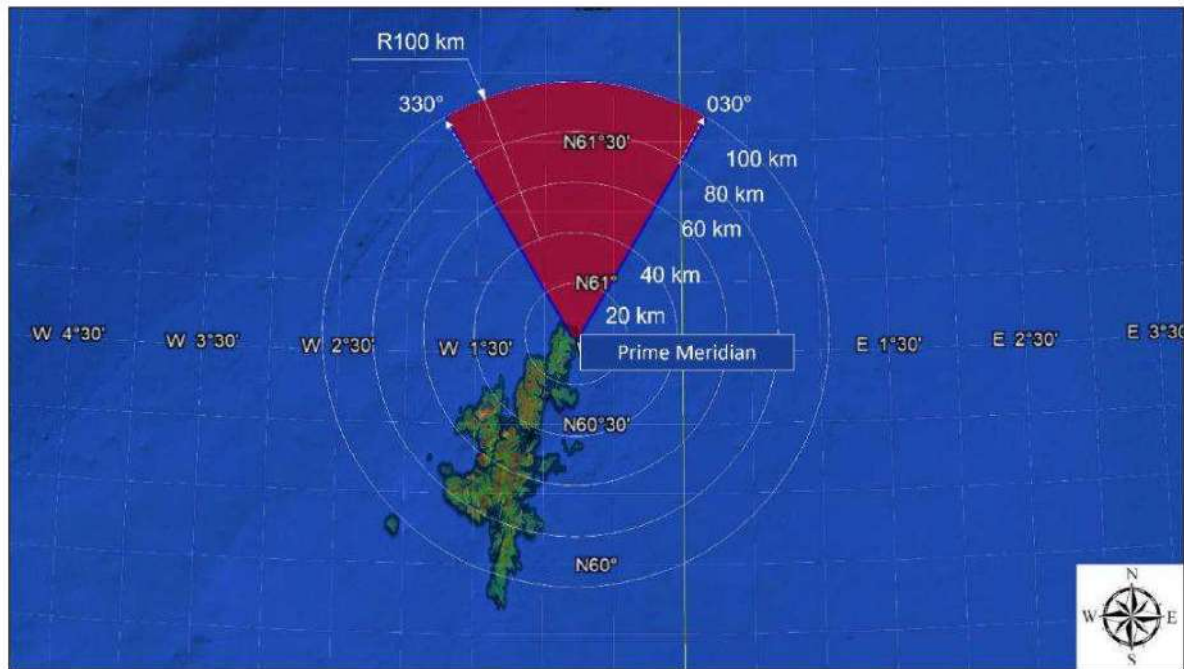


Figure 6-1 TDA shape – original

6.2 RELEVANT STAKEHOLDERS

According to Table 1, the following stakeholders required a change in the TDA and/or its activation time to minimize the impact on the air traffic: CAA Norway, Isavia, and NATS. The involvement of Eurocontrol was suggested by the CAA UK to cover several open points regarding the use of Free Route Airspace in the Scottish FIR, as well as to complete the analysis of the air traffic for the proposed TDA. The feedback of the above-mentioned stakeholders was essential to redefine the original TDA, described in Section 6.1, to the final TDA, described in Section 6.3.

Communication plans and detailed information about launch operations were requested instead by Airtask, Bristow Helicopters, Northern Lighthouse Board, Met Office and the MOD – DAATM.

Table 3 summarizes the needs of the relevant stakeholders in form of an acceptance condition for the TDA. The motivation as well as the required input for further cooperation are added to the table. The responsibility is assigned accordingly. The last column indicates whether the action has been completed, is still in progress or has not been implemented for the purpose of this single launch.

Table 3 Relevant stakeholder feedback

Stakeholder	Conditions	Reason	Required inputs	Responsible	Status
NATS	<p>Creation of a 5nm FBZ around the TDA in the Scottish Free Route Airspace</p> <p>Modularity of TDA: small area around the launch site activated prior to remote loading operations; larger area only activated to cover the launch/recovery phase</p>	<p>CAA policy on Free Route Airspace</p> <p>Reduce number of flights adversely affected by the launch</p>	<p>FBZ only required within the Scottish FIR</p> <p>Traffic analysis</p>	<p>HyImpulse (Sec. 6.3.1)</p> <p>HyImpulse (Sec. 6.3.2)</p>	<p>Completed</p> <p>Completed</p>
	<p>LoA between Range Operator (Saxa Vord Spaceport) and NATS before launch license can be granted</p>	<p>Agree priority of activities within the TDA and communication channels</p>	<p>Engagement with Saxa Vord</p>	<p>Saxa; NATS</p>	<p>In progress</p>
MOD DAATM	<p>- Clarification of the TDA impact on the route network;</p> <p>Clarification of any agreements that have been reached with the CAA regarding priority of TDA activation vs impacted activities</p>	<p>MOD and NATS agreement on concurrent activation of Danger Areas</p>	<p>Summary of traffic analysis from</p> <ul style="list-style-type: none"> - Isavia - Eurocontrol - Saxa Vord spaceport <p>Contingency procedures for the possibility of non-compliant aircraft flying through the TDA when active (e.g. foreign aircraft not under control of UK ATC agencies); or other aircraft flying close so that they can watch the launch</p>	<p>HyImpulse</p> <p>NATS; Saxa</p>	<p>Completed</p> <p>In progress</p>
	<p>Robust communication chain between 78 Sqn and ASACS;</p>	<p>Potential to impact MOD's responsibility to the NATO Air Policing task</p>	<p>TDA detailed activation timeline</p>	<p>HyImpulse</p>	<p>In progress</p>

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	Understanding of activation timelines		Communication plan between spaceport and 78Sq/ASACS	Saxa	In progress
	Engagement with the UK Space Operations Centre (UK SpOC)	UK SpOC is responsible for monitoring and reporting of all UK space launch activities	Provide UK SpOC with details on launch activities	HyImpulse or Commercial Space Team - CAA (TBD)	In progress
Airtask Group	Priority to SAR operations in the TDA until prior to launch	Emergency response on daily basis	Detailed launch events	HyImpulse	In progress
	Provide DACS with the TDA	High flexibility in operations	Contact details of the operations room for the spaceport; direct communication during launch activities	Saxa	In progress
Bristow Helicopters	Direct communications with spaceport	SAR emergencies, timely access to the TDA	Highly recommended for future launches	Saxa	Not implemented
MetOffice	Contact Lerwick Observatory before launch	Avoid interference of weather balloons in the TDA if needed	Contact details of the operations room for the spaceport	Saxa	In progress
Northern Lighthouse Board	Contact NLB before launch operations	NLB has an oversight of the GLAs fleet of vessels and aircraft	Detailed launch events	HyImpulse	In progress
Isavia	Suggested launch window between 22.00 pm – 8.00 am	Minimize the impact on air traffic entering the BIRD FIR	Detailed launch events	HyImpulse; Saxa	In progress
	Contact ICETRA (Icelandic Transport Authority)	Inform Iceland Transport Authority	Contact NLB Planning Coordinator and Delivery Planning inbox	HyImpulse	In progress
	The TDA entering the FIR Polaris shall be requested as DA to the CAA Norway with an additional application	Regulations	Traffic analysis from Eurocontrol to assess compatible launch window	HyImpulse (Sec. 7.2.2)	Not implemented
			TDA description	HyImpulse	Completed
CAA Norway			Launch operations; TDA activation time; coordination with ATS	HyImpulse (Sec. 6.3)	Not implemented

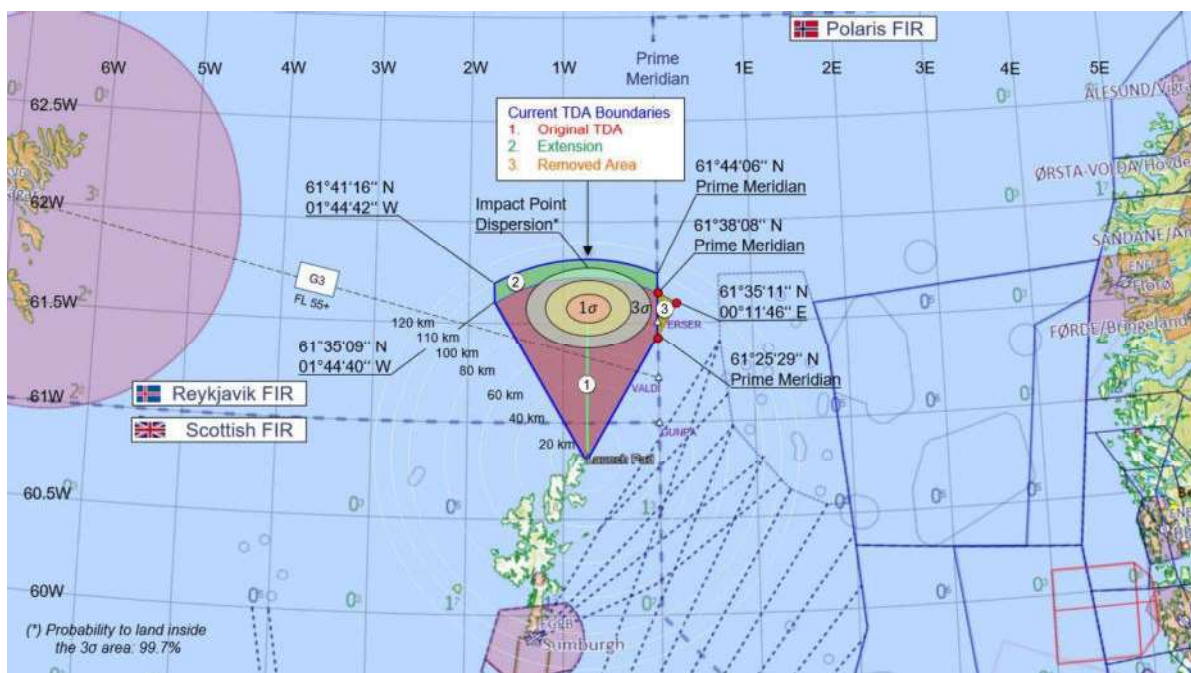
6.3 TDA PROPOSAL AFTER ENGAGEMENT

Based on the feedback obtained from the CAA Norway, the lateral shape of the TDA was updated according to Figure 6-2 (bottom). Because the area falling into the Polaris FIR is minimal, HyImpulse preferred to reshape the TDA to exclude the involvement with Norway at this stage, to comply with the launch timeline and to avoid jeopardizing internal resources.

The first change applied to the TDA was removing the triangle falling into the Norwegian FIR (Point 3 in Figure 6-2, top). The change of the lateral shape was justified in the Flight Safety Analysis (FSA) conducted by HyImpulse for the ANO application. The FSA showed that the initial TDA shape widely extended beyond the 3-sigma impact distribution emerged from the Monte Carlo simulations. The probability of impact on the upper left and right corners of the TDA is negligible (less than 10^{-6}).

The second change applied in sequence was extending the upper boundary of the TDA of 10km to include the 3-sigma area from the flight safety analysis (Point 2 in Figure 6-2, top).

The two changes applied in sequence result in the TDA shape presented in Figure 6-2 (bottom). Note that HyImpulse applied a change to the proposed TDA using the least effort, thus removing the east boundary only, for the reason explained above.



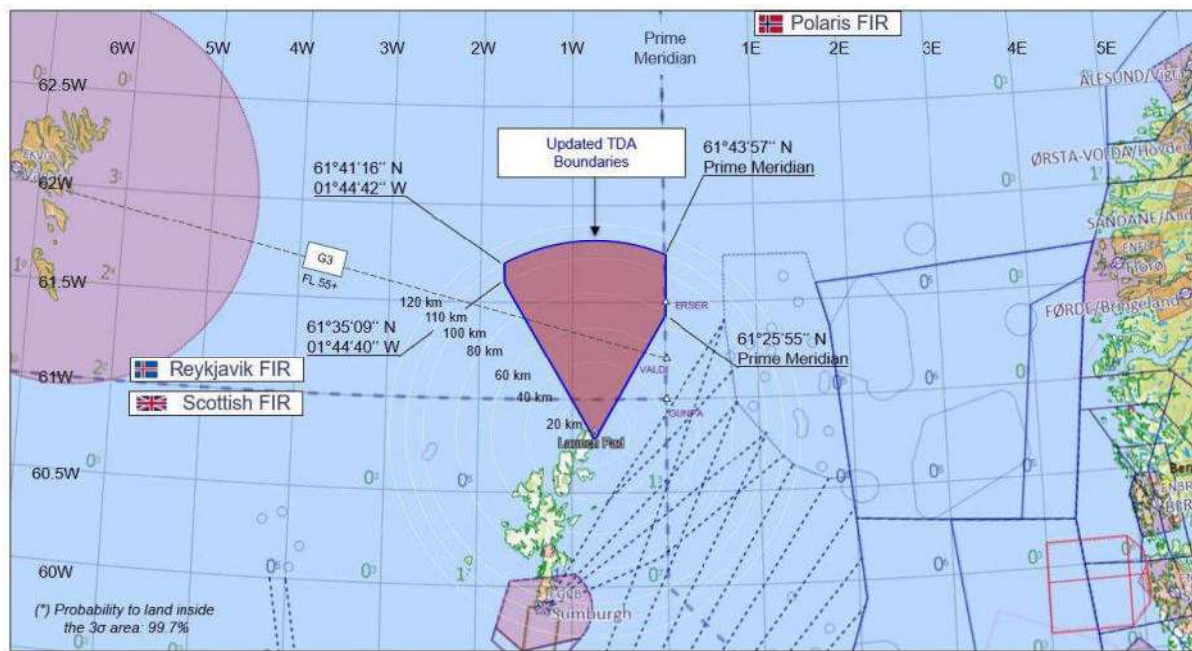


Figure 6-2 TDA shape - updated

The TDA updated to February 18th is contained within the following Flight Information Regions (FIRs):

- BIRD - Iceland – Reykjavik Area Control Centre (ACC)
- EGPX - UK – Scottish Centre

The updated coordinates of the TDA are provided in ANNEX D.

6.3.1 FPL BUFFER ZONE

The interaction with NATS showed that a FBZ must be associated to the TDA contained within the Scottish FIR. The FBZ is not required in the FIR Polaris and FIR Reykjavik. The proposed FBZ is shown in Figure 6-3. The FBZ needs to be notified but not activated. It provides a minimum margin of 5 nautical miles from the TDA border.

The coordinates of the FBZ are provided in ANNEX E.

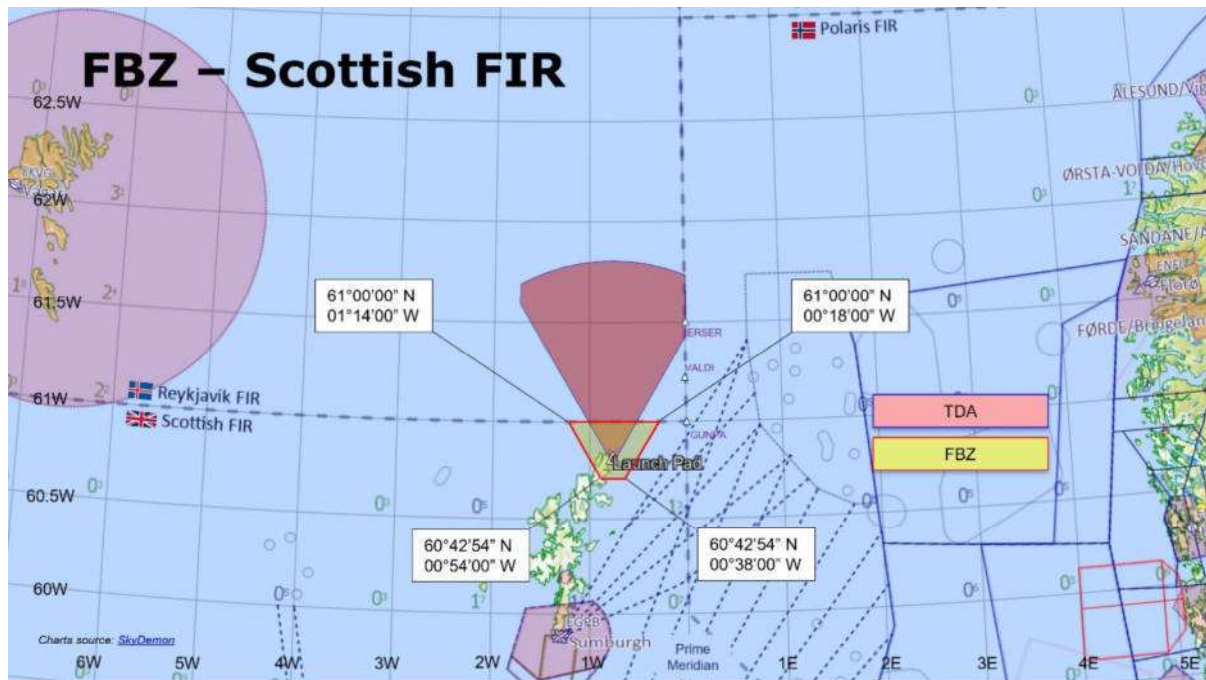


Figure 6-3 FBZ (yellow) associated to the TDA (red)

6.3.2 MODULARITY

Consultations with NATS, Eurocontrol and the CAA strongly recommended the use of modularity within the TDA to reduce the impact on the air traffic. As a consequence, the following approach is proposed:

- A small area is activated around the spaceport starting 6 to 4 hours before launch to contain hazards associated with launch preparation (Figure 6-4). The lateral radius is 2 km, which is what emerged from the FSA to be a suitable safety exclusion zone for this launch campaign
- The large TDA structure is activated only before launch (approximately 2h before launch) to contain the hazards associated with the flight and recovery phase (Figure 6-5)



Figure 6-4 TDA zone A (GND – 1000 ft): loading operations

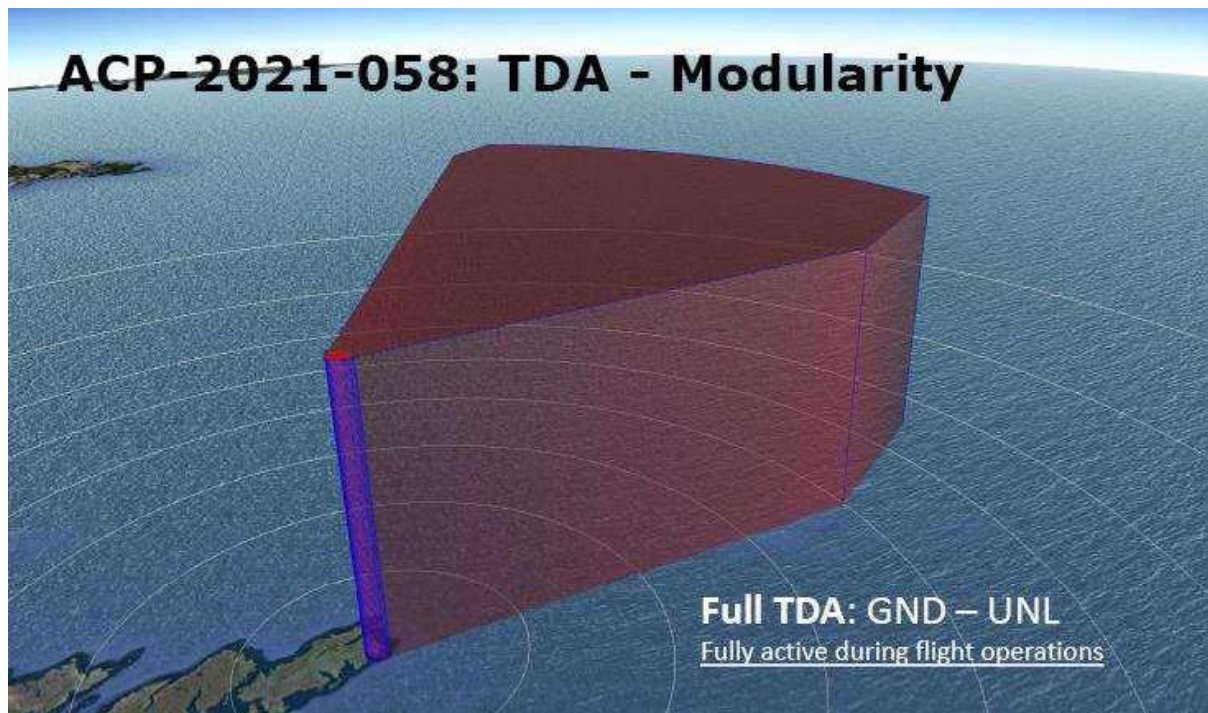


Figure 6-5 TDA (GND – UNL): flight

This approach satisfies the requirement of the CAA to contain the rocket preparation activities using the smallest volume of airspace possible.

6.3.3 ACTIVATION PROCEDURES

The following procedures shall be followed by HyImpulse to activate the TDA and the FBZ

- After approval from the CAA, with TDA will be notified through the AIP supplement system
- The FBZ will be notified through the AIP supplement
- Once notified, the TDA can be activated by NOTAM with a minimum of 7 days in advance prior to the launch date.
- It is possible to issue additional NOTAMs to amend or cancel the original NOTAM if required

6.3.4 ACTIVATION TIME

The launch of a rocket can highly depend on weather conditions on site, and it is not rare that a launch is postponed. As a consequence, HyImpulse cannot provide an exact date of launch when submitting this application, rather than targeting the launch day to September or October 2022.

HyImpulse intends to complete one single launch within the 90 days notification period. Exact planned launch dates will be confirmed with a minimum of seven days' notice by NOTAM and will include details of the planned fallback dates that will be required to account for unsuitable weather or other factor that prevents or delays the planned launch.

A suitable launch window will be selected based on the analysis of traffic conducted by Eurocontrol (Sec. 7.2.2). HyImpulse could target a launch in the afternoon (12.00-20.00) to comply with the lower traffic statistics, although this is not the preferred option (Section 6.4).

A night launch is not completely excluded but requires further assessment about the recovery procedures and costs. Note that to avoid sleep disturbance to the local community HyImpulse will exclude the time range 2300-0700 from launch activities. The stakeholders and the CAA will be informed in a timely manner.

6.4 POSITION OF HYIMPULSE

HyImpulse understands the concerns of aviation stakeholders related to the de-routing of the high level traffic during the peak traffic of the day. Nonetheless, HyImpulse would like to request a launch window which covers the entire daylight time (0700-2000) for the following reasons:

- Frequency of launch: this is a single, experimental launch. HyImpulse would appreciate full flexibility in choosing the date of the launch and the launch window because launch scraps cannot be predicted months in advance and strongly depend on local weather conditions
- Safety of operations: to guarantee the safety of launch operations and recovery during the first launch campaign HyImpulse aims to conduct launch activities during daylight time. Operations in the dark for a first launch could lead to the loss of the booster in marine environment or unsafe operations at sea
- Cost of operations: HyImpulse is a German startup which aims to demonstrate its technology maturity lever with this launch. As a startup, HyImpulse is facing budget limitations if conducting launch operations at night due to the higher costs required for the night shift, as well as for additional equipment used to localize and recover the booster in open waters at night
- Spaceport and launcher: the facilities at Saxa Vord are new (currently under construction) and the sounding rocket of HyImpulse has concluded its first R&D phase. The launch date shall be flexible to accommodate the needs of the

spaceport in hosting its first launch activity. The launch window shall be flexible to allow HyImpulse to hold the launch sequence for several hours and resume the countdown sequence afterwards. Aborting the launch sequence because exceeding a narrow launch window could cause additional costs for HyImpulse activities

- **Noise disturbance:** sleep disturbance based on a single occurrence for the local community can be avoided by launching in the range 0700-2000
- **Political rationale:** the UK politics is supporting the first launch activity from the Saxa Vord Spaceport. It is a prestigious situation for the UK and Saxa Vord Spaceport to pave the way to commercial space flight. HyImpulse supports the claim that, on the long-term, commercially operational orbital launches from the Shetlands should not necessarily comply with the restrictive rules of the air traffic management

7 ENVIRONMENTAL REQUIREMENTS

Environmental requirements are applicable to temporary airspace changes (Par. 300; 302 of [CAP-1616]). To comply with the regulation, the following assessments are provided in this section:

- Sponsor's assessment of the noise impact of the proposed temporary change to airspace design, as non-technical summary
- An assessment covering direct impact of the launch activities and any consequential impacts as result of aircraft rerouting

7.1 LAUNCH PROFILE

The sounding rocket SR75 is to be launched for its first suborbital flight from the Saxa Vord spaceport. The launch site is located at 60°49'04"N – 0°45'40"W (Unst). After the boost phase the SR75 will coast to the apogee (ca. 40 km) where the nose cone will be jettisoned. The booster will be recovered with parachutes. The drop zone of the nose cone is expected to be 2 km uprange of the booster's one. A summary of the flight phase is provided in Figure 7-1.

The airspace change requested in this application is covering a single launch of SR75 under the ANO regulation. The flight mission is limited to about 400 seconds from the moment of liftoff to the moment of splashdown.

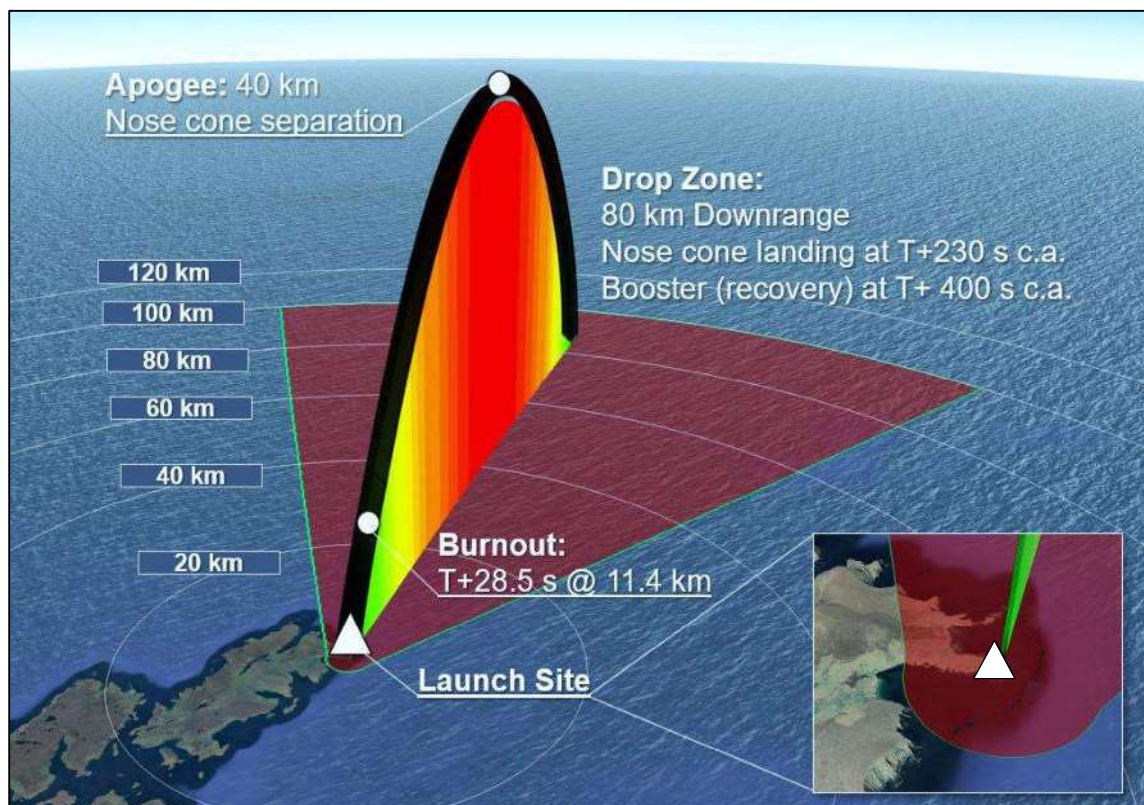


Figure 7-1 Nominal trajectory and main events

7.2 NOISE IMPACT DUE TO DE-ROUTED AIR TRAFFIC

Each FIR presented in the previous paragraphs is divided into horizontal and vertical sectors with different levels of services provided by the Air Navigation Service Providers (ANSPs). At low flight levels aircraft are not managed by ATC and radio communications requirements are either low or non-existent.

According to [CAP-1616], if the temporary change to the airspace design would affect the distribution of traffic below 7,000 feet, it is vital that the communities that may be affected are informed prior to the change being implemented. The following paragraphs report the assessment of the air traffic entering the TDA, with primary focus on the low-level traffic.

7.2.1 LOW LEVEL TRAFFIC

HyImpulse reports the major outcomes of the airspace analysis conducted by the spaceport [Saxa-01]. The report is based on a year's ADS-B surveillance data from January-December 2019 specifically selected for Pre-Covid traffic numbers. The fleet of aircraft operating within the EU with at least one of the ADS-B transponder versions considered in the report is approximately 90% of all its monitored traffic.

HyImpulse reports the air traffic analysed in the area within 130 km from the spaceport (Figure 7-2 - top) which is meaningful for this TDA. The grid size in the main profile is made of 0.5° cells both for latitude and longitude. There are two distinct concentrations of level bands within the filtered area (Figure 7-2 - bottom). The delineation line is identified at approximately FL200:

- **Above FL200 (20,000 ft):** Main traffic concentrations occurring between FL290 and FL400. The commercial routes reporting to the GUNPA and VALDI points (refer to Figure 7-6) are localized northly from the spaceport (cf. Figure 7-2 - top) and on the high-level band.

The de-routing discussed in Section 7.2.2 when activating the full TDA about 2 hours before launch (cf. Section 6.3.2) is not expected to impact the local community at Unst in terms of noise disturbance. To quantify the maximum number of de-routed aircraft in the TDA, HyImpulse is referencing the analysis of the spaceport [Saxa-01]. The impact on traffic for activating a restricted area within one hour window in the busiest month of the year (August) is quantified based on the peak traffic:

- 10 nm downrange the spaceport (19 km) has occupancy of 5 aircraft in June between 1300 – 1400 UTC
- 20 nm downrange the spaceport (37 km) has occupancy of 58 aircraft in June between 1400 -1500 UTC
- **Below FL200:** Considerations are made based on Figure 7-3 showing the band below FL120 (12,000 ft) within 130 km radius from the spaceport [Saxa-01]:
 - Busiest time of the day is between 0900 – 1900 UTC. Least busy times of day are between 2100 – 0700 UTC
 - Busiest day of the week is Monday (Day 1). Minimum amount of traffic is on Saturdays and Sundays
 - Peak height bands are between FL005 – FL040 (500 ft – 4,000 ft)

The air traffic density in the area surrounding the launch site was assessed by the spaceport [Saxa-01] at the ranges 10 nm – 20 nm – 80 nm. The table on the bottom of Figure 7-4 shows the total number of aircraft crossing the level bands (rows) within the first 10 nm from the spaceport. There are about 44 aircraft between ground level and FL050 for the simulated launch. The de-routing of the aircraft below 7,000 ft when activating the full TDA about 2 hours before launch (cf. Section 6.3.2) is not expected to significantly impact the local community at Unst in terms of noise disturbance.

Note that coordination with NATS confirmed the low incidence of Visual Flight Rules (VFR) / General Aviation (GA) traffic which is mainly occurring below FL070 [Saxa-01]. Helicopter ADS-B equipage rates were estimated to be around 90% for activities in the North Sea. Although a 10% of aircraft was not included in the data assessment because non equipped with ADS-B transponder, for the area north from the spaceport the percentage of non equipped aircraft would fall to negligible levels [Saxa-01].

Based on the traffic analysis on the low-level and the introduction of modularity in the TDA, HyImpulse does not foresee significant disturbance to the local community in terms of increased noise level due to aircraft de-routing.

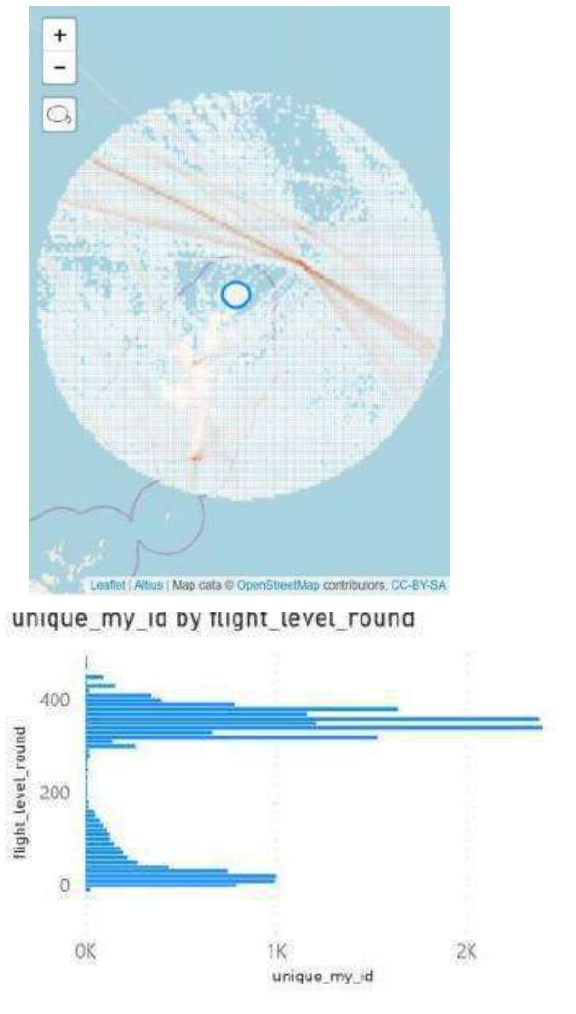


Figure 7-2 Total traffic data within 130km radius from the spaceport and concentration on flight levels [Saxa-01]

Stakeholder Engagement Report

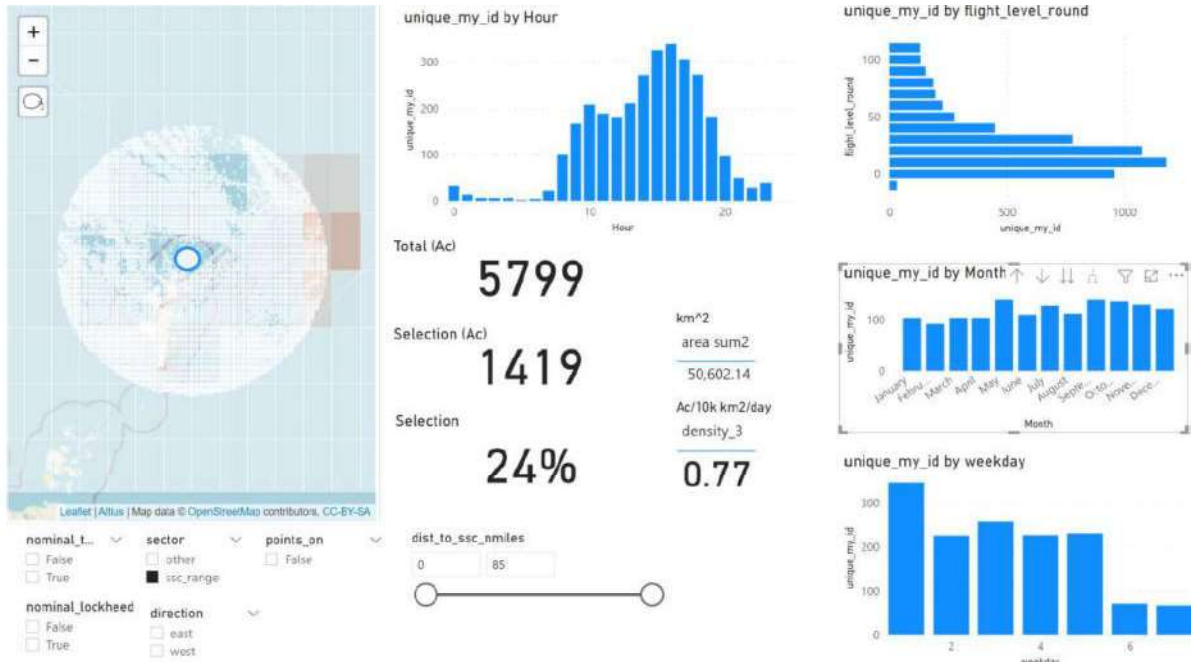


Figure 7-3 Air traffic below FL120 within 130km radius from the spaceport (Fig 31 of [Saxa-01])

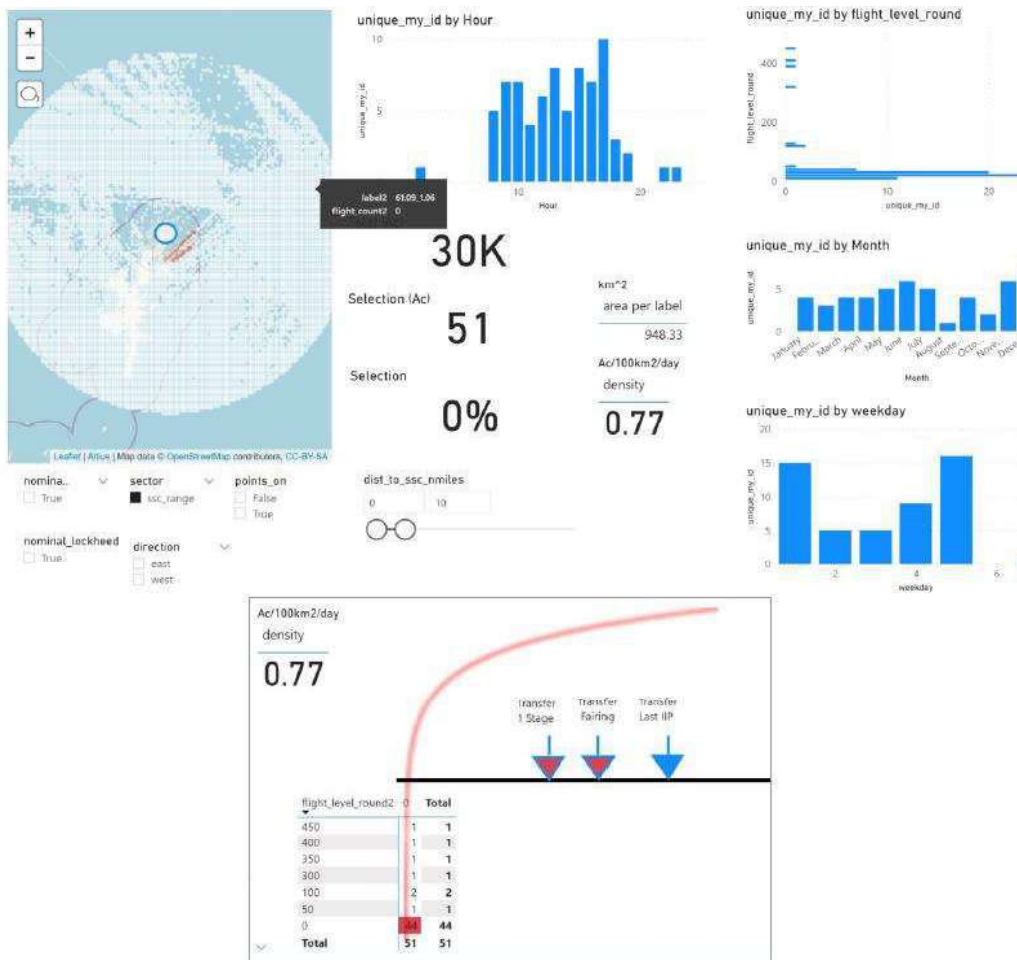


Figure 7-4 First 10 nm (19 km) downrange from Saxa launch site (Fig. 36 of [Saxa-01])

7.2.2 HIGH LEVEL TRAFFIC

The amount of civil traffic affected by the TDA activation was further assessed by Eurocontrol. The results were uploaded as support material for this submission [RD-02]. The following assumptions were used for the analysis:

- Traffic forecast for peak months (Aug-Sep 2022)
 - August-September 2022 will reach the traffic values of pre-Covid (2019)
 - August 15th 2022 is selected as worst case date concerning the number of flights
 - The results can be extended for any day in the period intended for operations because the traffic patterns in the TDA show little variation
- TDA shape proposed in Figure 6-2 (no modularity)
- The FBZ extend to 5 NM from the entire TDA
- Activation of 4-8 hours/day during daylight time (0600-1800 UTC)

Figure 7-5 shows the traffic forecast for the peak day (August 15th) over the 24 hours. To understand how the two counters work, an example is provided hereby.

The entry rate shows the number of entries in the TDA over the n time intervals making one hour (i.e., the sum of time intervals of one cycle adds up to 1 hour). This can be considered as an averaged traffic density. The occupancy count is the number of aircraft observed within the TDA at any minute during the time interval n . Figure 7-5 is calculated for $n = 1$ minute.

The same plot is reported in [RD-02] with $n = 20$ minutes, thus increasing the granularity of the traffic density. Because the crossing time for flights in the TDA is between 5 to 11 minutes, it is possible that the occupancy count gives zero over 20 minutes, because the aircraft entered and exited the TDA already. To understand how the entry rate works, consider this example:

- 3 aircraft enter the TDA between 12:00 – 12:20
- 5 aircraft enter the TDA between 12:20 – 12:40
- 1 aircraft enter the TDA between 12:40 – 13:00
- 0 aircraft enter the TDA between 13:00 – 13:20

The entry rate for the hour at 12:00 will be $3 + 5 + 1 = 9$. The entry rate for the hour at 12:20 will be $5 + 1 + 0 = 6$. And so on.

The analysis of [RD-02] considers a potential activation window of 6h from 1000 – 1600 to exploit daylight for launch operations. A launch between 0600 – 1200 would affect the larger portion of traffic. The traffic crossing the TDA during daylight time (0600 – 1800) is 64,2% of the 24H traffic as reported in Table 4.

Table 4 Traffic crossing the TDA. Peak day forecast: August 15th 2022

Date	Traffic crossing TDA (24H)	Traffic crossing TDA daylight time (0600 – 1800)	Traffic crossing TDA night-time (1800 - 0600)
August 15 th 2022	95	61	34

During the stakeholder engagement, Isavia suggested a launch window in the night to minimize the impact on the air traffic (2200-0800). To avoid sleep disturbance to the local community the window 2300-0700 has been ruled out by HyImpulse. To guarantee the safety of operations, HyImpulse strongly prefers conducting launch and

recovery operations during daylight time. HyImpulse suggests the window 0700 – 2000 for launch operations (support in Section 6.4).

HyImpulse is planning to avoid the peak month of August [Saxa-01] by launching by the end of September or during October 2022, depending on the availability of the spaceport.

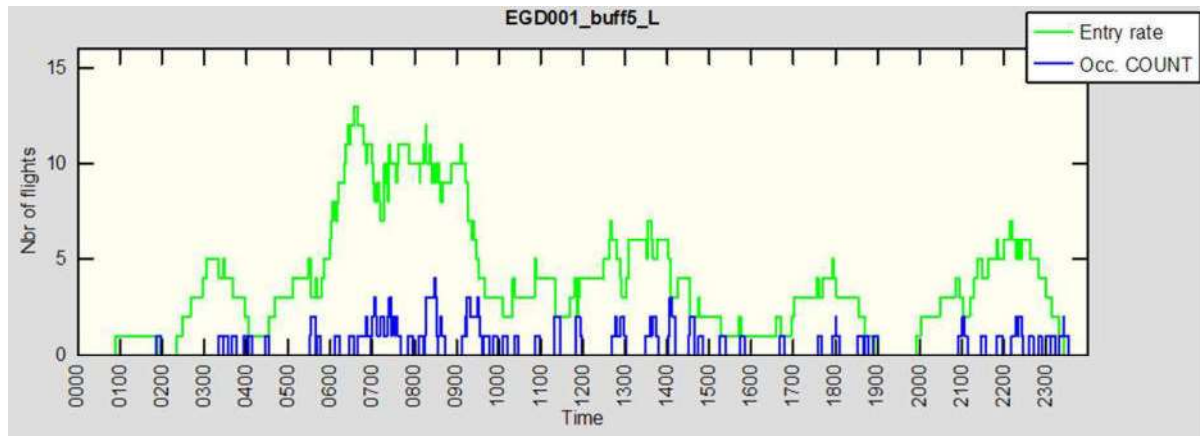


Figure 7-5 Traffic in the TDA with 5 NM FBZ. Peak day forecast: August 15th 2022

Eurocontrol reports that the traffic re-routed to bypass the TDA is generating on average 2.3 NM of the route extension per flight [RD-02]. The de-routed flights would move from VALDI and GUNPA points to IPTON and PEPIN respectively (Figure 7-6).

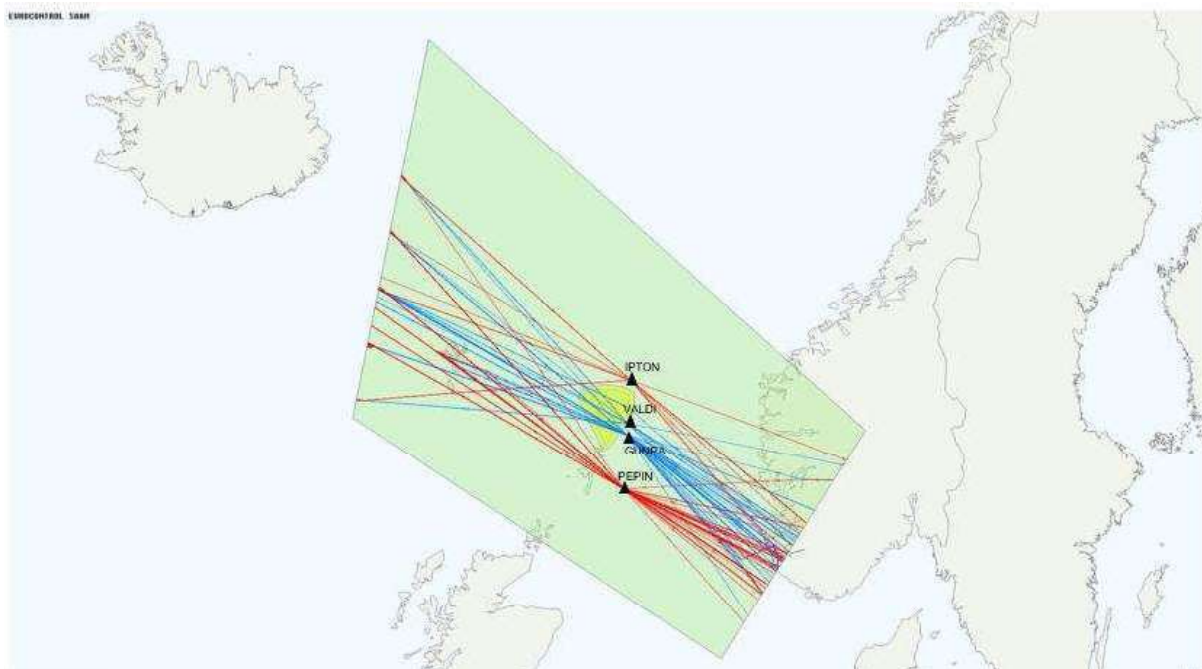


Figure 7-6 De-routed traffic (red). Peak day forecast: August 15th 2022

When initial and re-routed traffic are compared, the results show that about 60% percent of the re-routed traffic has an extension of average 8.5 NM, while the trajectory of the remaining 40% of the re-routed traffic is reduced by 6.7 NM. This gives the average route extension of 2.3 NM.

Adding the modularity to the TDA as described in Section 6.3.2 would help to reduce the number of de-routed aircraft within the 6 hours window [RD-02]. This solution is supported by HyImpulse and NATS.

7.3 NOISE IMPACT DUE TO LAUNCH OPERATIONS

The noise impact due to the operations related to the single launch of SR75 were assessed by HyImpulse in the AEE [HIT-01] as part of the documentation required for a launch and return operator under the Space Industry Act (SIA). A detailed assessment was also done by the spaceport in their AEE [Saxa-02] and by Blue Ridge Research and Consultancy LLC (BRRC) as a third-party consultant [Saxa-03]. The AEE documents will be made available by the CAA during the public consultation period following the application submission (Saxa – March 2022; HyImpulse – April 2022). Upon consultation with the spaceport, HyImpulse is referring to the studies of [Saxa-02, Saxa-03] to support the analysis of the noise impact on the community.

The analysis of the spaceport includes level of noise that could be a statutory nuisance according to the Environmental Protection Act in the UK. During launch activities, noise will exceed the criterion of community annoyance associated with aircrafts (based on the UK civil aircraft noise contour model ANCON from the Environmental Research and Consultancy Department at the CAA). However, the instantaneous noise level will be below the threshold of damage to hearing. Because the launch itself has a short duration and it is occurring only once, the level of annoyance to the community is reduced below those associated to an airport (Par. 1.8 of Volume I [Saxa-02]).

BRRC assessed the noise predictions associated with static engine tests and launches from the spaceport, which also represent the activities conducted by HyImpulse [Saxa-03]. The Blueridge report was conducted using a representative launch vehicle bigger than the sounding rocket. Figure 7-7 reports the noise footprint map for noise levels greater than $L_{Amax} = 80$ dBA caused by a single launch activity. The upper limit noise is set to 115 dBA. The upper limit contour is contained within 0.56 km from the launch pad and does not reach the closest residential area (Norwick). Potential impact to the local community regarding hearing conservation is not expected.

Adverse effects associated with sleep disturbance due to night-time launches are avoided, because HyImpulse is not targeting to launch in the time range 2300-0700.

The sonic boom peak overpressure contours are presented in Figure 7-8 [Saxa-03]. The boom region begins approximately 60km downrange of the launch site, reaching a maximum of 5.4 psf. The sonic booms were modelled based on a single launch trajectory at nominal azimuth of 343° relative to the true north and are predicted to be entirely over water. Although the nominal trajectory of HyImpulse follows the nominal azimuth 360° , the sonic booms will be still located on open waters and the noise level would not impact the local community.

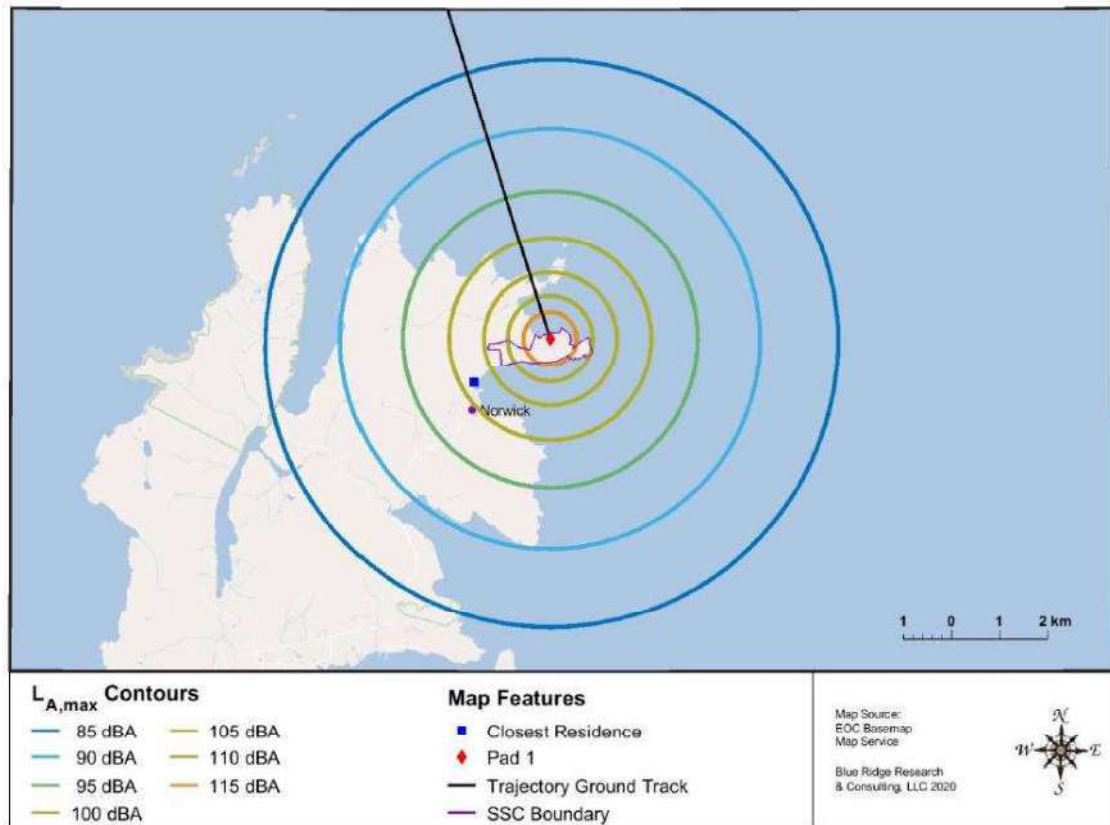


Figure 7-7 L_{A,max} contours for a rocket launch from Saxa Vord (Fig. 12 of [Saxa-03])

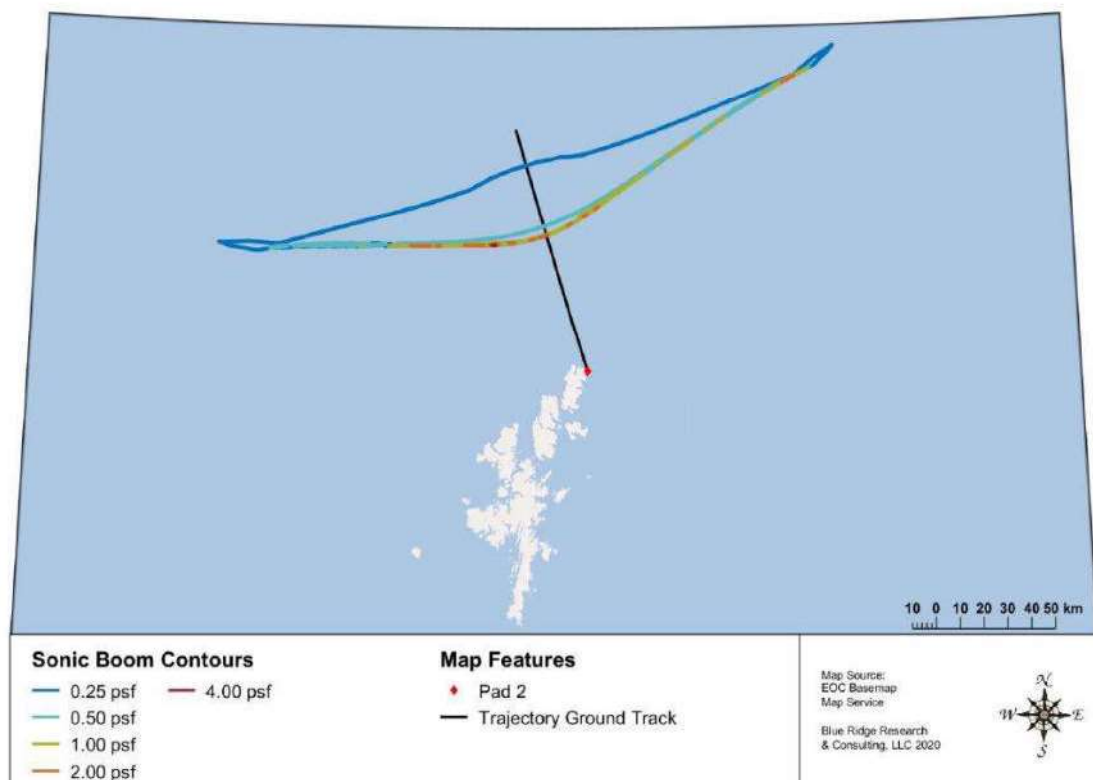


Figure 7-8 Sonic boom peak overpressure contours for launch from Saxa Vord (Fig. 40 of [Saxa-03])

Operational vibration impact magnitude criteria were assessed based on the likelihood of structural damage (Table 8.6 of [Saxa-02]). As mentioned before, the Blueridge report was based on representative launch vehicles significantly bigger than HyImpulse's sounding rocket. Because structural damage was not expected from the analysis of Blueridge, HyImpulse's sounding rocket is also not expected to cause structural damage on the closest residences.

Noise impact from the single launch campaign of SR75 is assessed to have a negligible impact on the community.

8 CONCLUSIONS

HyImpulse applied for an airspace change ([ACP-2021-058](#)) to cover a single launch activity of its sounding rocket SR75.

HyImpulse identified stakeholders potentially affected by the TDA during the stakeholder engagement phase (January – March 2022). The feedback of the stakeholders in the area suggested to re-design the originally proposed TDA as well as redefine its activation time. This report shows evidence of the stakeholder engagement and proposes a revised TDA based on the stakeholders needs.

For transparency with the stakeholders and the local communities, this report also includes the environmental assessment of the noise level (Appendix B of [CAP-1616]), as well as a reference to the analysis of air traffic within the TDA. The environmental assessment is mainly based on the assessment of the environmental effects from both HyImpulse [HIT-01] and the Saxa Vord Spaceport [Saxa-02, Saxa-03]. Negligible noise impact is foreseen on the community due to the launch operations of SR75 and de-routed traffic below 7,000 ft.

The TDA proposed at the end of the consultation is to be activated only once during its notice time of 90 days, by the end of September 2022 or in October 2022. The TDA contains modularity, so that the zone close to the launch pad is activated 6-4h prior to launch due to the loading operations on the rocket. The full TDA will be only activated about 2h before flight to reduce the impact on the high-level traffic. The TDA will extend from surface to unlimited. A FPL Buffer Zone (FBZ) is activated within a margin of 5 nm from the TDA boundary only in the Scottish FIR. Search and Rescue (SAR) operations on the low-levels are prioritized in the TDA until the loading operations on the rocket are completed. A suitable launch window having a minor impact on the air traffic was selected based on the feedback from Isavia and Eurocontrol, and it is currently targeting the window 1200 – 2000 UTC. For the purpose of safety and cost optimization, HyImpulse strongly prefers conducting launch and recovery operations for this first launch during daylight time. The window 0700 – 2000 is suggested for launch operations. The possibility of launching between 2300-0700 is ruled out by HyImpulse to avoid sleep disturbance to the local community. As HyImpulse has shown flexibility to include the stakeholder needs during the engagement phase, HyImpulse is expecting a certain flexibility from the stakeholders in allocating the launch window, with the valid explanation that the TDA is planned to cover only one single launch.

ANNEX A. STAKEHOLDER ENGAGEMENT EMAILS

From: [REDACTED]
Sent: 03 January 2022 14:11
To: [REDACTED]
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

HyImpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about HyImpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email ([TDA ACP-2021-058.pdf](#)).

The document [Targeted Engagement Response Form.pdf](#) will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

HyImpulse wishes you a happy New Year and a great start in 2022!

In behalf of HyImpulse,

[REDACTED]
Space Licensing and System Engineer

Figure A 1 First contact email (January 2022)

From: [REDACTED]
Sent: 24 January 2022 08:44
Cc: [REDACTED]
Subject: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear all,

HyImpulse contacted your organization at the beginning of January 2022 to inform you about the establishment of a Temporary Danger Area in the Shetlands (see original email below). We are getting back to you today because we haven't received your feedback yet.

You can find more information about HyImpulse's aim and why we requested an airspace change using this [link](#). A detailed description of the requested Temporary Danger Area is attached to this email ([TDA ACP-2021-058.pdf](#)). The document [Targeted Engagement Response Form.pdf](#) will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

If you were already contacted by the [SaxaVord spaceport](#) for a similar request, please let us know, so that we can align with them accordingly.

Do not hesitate to contact us in case you require further information from our side.

In behalf of HyImpulse,

[REDACTED]
Space Licensing and System Engineer

Figure A 2 Follow up email #1 (January 2022)

Stakeholder Engagement Report

From: [REDACTED]
Sent: föstudagur, 18. febrúar 2022 14:11
To: [REDACTED]
Cc: [REDACTED]
Subject: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

After consultation with several stakeholders in the past weeks, we decided to slightly modify the shape of our proposed TDA. Please see the attached file **TDA ACP-2021-058 - Modifications.pdf** for further details about the new geometry. What is interesting for [REDACTED] More information below.

What has changed?

There are two minor changes in the shape of the TDA:

- The extension of the northern boundary of +10km
- The modification of the north-east boundary

Both changes are justified in our flight safety analysis, currently reviewed by the Civil Aviation Authority in the UK. Moreover, we updated the activation time to be

- August – October 2022 (previously July – September 2022)

to accommodate the needs of the Saxa Vord Spaceport. We are basing our assessment on a conservative case (activation of the TDA for 3 days per week using a launch window of 4-6 hours/day only - daytime). To increase flexibility for air traffic and Search and Rescue ops in the area, confirmation of activation will be given about 24h in advance.

What do you need to do?

You can proceed with the internal assessment, if possible, based on the new TDA and its activation time. Please use the document **Targeted Engagement Response Form.pdf** to provide the feedback. Because of the last change, we have extended our feedback deadline to **March 18th 2022, 11:59 pm CET**.

Anything else to know?

We are in contact with EUROCONTROL to evaluate the impact on the air traffic between Aug-Oct. Because we are requesting the TDA in the airspace of [NATS](#), we would also need to define a Flight Buffer Zone (FBZ). Information about the FBZ can be found in the ERNIP Part 3 document from EUROCONTROL (in particular: Section 6.1.2.6 and Section 12.1 in Annex 4). We are initiating the engagement with EUROCONTROL and NATS first. Norway and Iceland will be involved for the assessment of the traffic routes in a second stage. The analysis will be performed by EUROCONTROL.

Let me know if you would require further information. In the meantime, have a great weekend!

[REDACTED]
Space Licensing and System Engineer

Figure A 3 Follow up email #2 – TDA change and deadline extension (February 2022)

ANNEX B. STAKEHOLDER RESPONSE FORM

Stakeholder response form from first contact. Second response form updated the deadline from February 28th to March 18th.



ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED] and [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	
Organisation name	
Position in the organisation	
Email	

Feedback

ANNEX C. TDA DESCRIPTION – FIRST CONTACT

TEMPORARY DANGER AREA (ACP-2021-058)

The temporary danger area is shown in Figure 1 and Figure 2: it will extend up to 100 km north of Shetland Islands (from 330° to 030°, coordinates in Table 1).

Period: 90 days, starting July 2022 (this date might shift), activated by NOTAM (occasionally, duration of days).

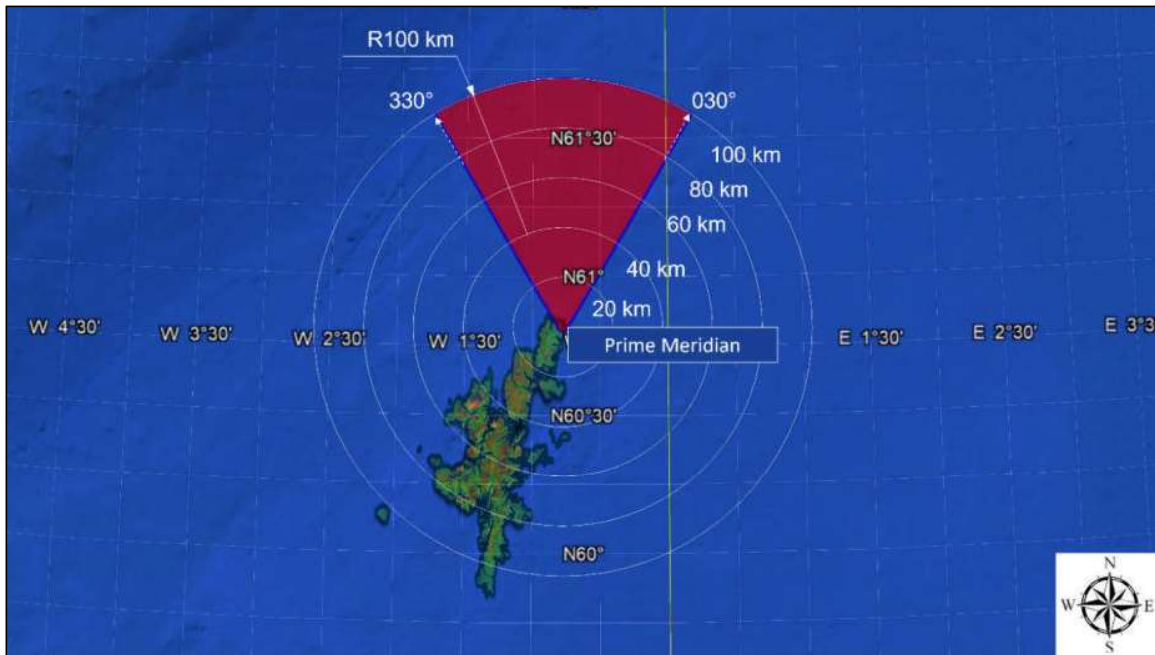


Figure 1: TDA Geometry – Overview

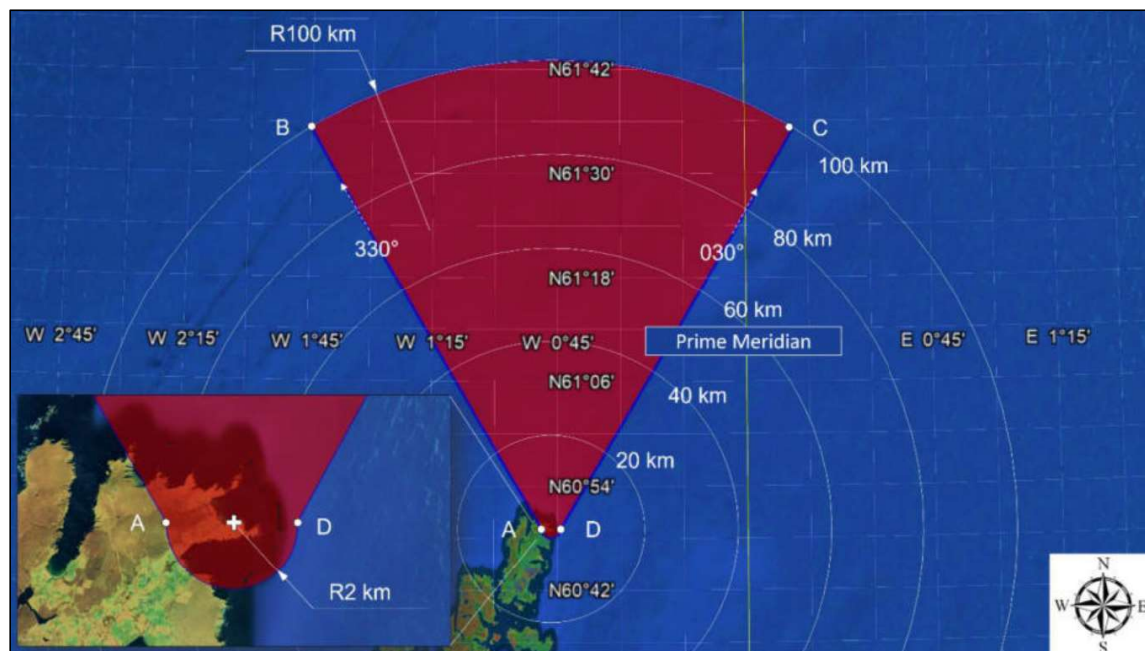


Figure 2: TDA Geometry – Design details

Vertical Boundaries: [Surface - Unlimited](#)

Table 1: TDA Boundaries – Latitude and Longitude Coordinates

Points	LATITUDE					LONGITUDE				
	Decimal	D	M	S	-	Decimal	D	M	S	-
A	60.8191	60	49	8.92	N	-0.8116	0	48	41.64	W
B	61.5857	61	35	8.51	N	-1.7443	1	44	39.58	W
North Boundary 100 km Radius Circle	61.5938	61	35	37.68	N	-1.7189	1	43	8.11	W
	61.6025	61	36	9.01	N	-1.6856	1	41	8.10	W
	61.6309	61	37	51.40	N	-1.5738	1	34	25.54	W
	61.6608	61	39	38.93	N	-1.4269	1	25	36.74	W
	61.6860	61	41	9.51	N	-1.2656	1	15	56.14	W
	61.7035	61	42	12.75	N	-1.1038	1	6	13.66	W
	61.7137	61	42	49.45	N	-0.9421	0	56	31.51	W
	61.7176	61	43	3.51	N	-0.7733	0	46	23.70	W
	61.7138	61	42	49.82	N	-0.6098	0	36	35.22	W
	61.7035	61	42	12.50	N	-0.4450	0	26	41.87	W
	61.6872	61	41	13.77	N	-0.2943	0	17	39.45	W
	61.6617	61	39	42.11	N	-0.1283	0	7	41.73	W
	61.6304	61	37	49.37	N	0.0254	0	1	31.59	E
61.5938	61	35	37.79	N	0.1693	0	10	9.59	E	
C	61.5855	61	35	7.72	N	0.1962	0	11	46.15	E
D	60.8192	60	49	9.23	N	-0.7379	0	44	16.48	W
South Boundary 2 km Radius Circle	60.8174	60	49	2.49	N	-0.7381	0	44	17.09	W
	60.8157	60	48	56.60	N	-0.7386	0	44	18.80	W
	60.8144	60	48	51.79	N	-0.7393	0	44	21.33	W
	60.8128	60	48	45.92	N	-0.7403	0	44	25.08	W
	60.8114	60	48	40.90	N	-0.7415	0	44	29.39	W
	60.8099	60	48	35.72	N	-0.7431	0	44	35.14	W
	60.8085	60	48	30.65	N	-0.7449	0	44	41.79	W
	60.8074	60	48	26.75	N	-0.7467	0	44	48.28	W
	60.8063	60	48	22.83	N	-0.7487	0	44	55.43	W
	60.8053	60	48	19.09	N	-0.7511	0	45	4.07	W
	60.8043	60	48	15.52	N	-0.7538	0	45	13.72	W
	60.8036	60	48	12.83	N	-0.7562	0	45	22.46	W
	60.8030	60	48	10.73	N	-0.7584	0	45	30.37	W
	60.8025	60	48	8.83	N	-0.7608	0	45	38.83	W
	60.8020	60	48	7.16	N	-0.7634	0	45	48.26	W
	60.8017	60	48	5.95	N	-0.7658	0	45	56.85	W
	60.8014	60	48	4.87	N	-0.7688	0	46	7.83	W
	60.8012	60	48	4.15	N	-0.7722	0	46	20.07	W
	60.8011	60	48	4.01	N	-0.7754	0	46	31.53	W
	60.8012	60	48	4.29	N	-0.7780	0	46	40.86	W
	60.8014	60	48	5.05	N	-0.7814	0	46	53.02	W
	60.8018	60	48	6.45	N	-0.7847	0	47	5.09	W
	60.8023	60	48	8.17	N	-0.7878	0	47	16.01	W
	60.8029	60	48	10.40	N	-0.7908	0	47	26.75	W
	60.8036	60	48	12.98	N	-0.7935	0	47	36.63	W
	60.8046	60	48	16.65	N	-0.7966	0	47	47.59	W
	60.8057	60	48	20.59	N	-0.7993	0	47	57.43	W
	60.8067	60	48	23.96	N	-0.8013	0	48	4.74	W
	60.8081	60	48	29.23	N	-0.8039	0	48	14.12	W
	60.8091	60	48	32.64	N	-0.8053	0	48	19.07	W
	60.8102	60	48	36.76	N	-0.8068	0	48	24.53	W
	60.8116	60	48	41.76	N	-0.8082	0	48	29.46	W
	60.8125	60	48	45.16	N	-0.8090	0	48	32.56	W
60.8137	60	48	49.20	N	-0.8098	0	48	35.34	W	
60.8146	60	48	52.54	N	-0.8104	0	48	37.46	W	
60.8156	60	48	56.22	N	-0.8109	0	48	39.10	W	
60.8168	60	49	0.61	N	-0.8112	0	48	40.41	W	
60.8179	60	49	4.29	N	-0.8115	0	48	41.29	W	

ANNEX D. TDA – COORDINATES

Points	LATITUDE					LONGITUDE				
	Decimal	D	M	S	-	Decimal	D	M	S	-
A	60.8193	60	49	9.48	N	-0.8118	0	48	42.46	W
B	61.5858	61	35	8.90	N	-1.7443	1	44	39.40	W
C	61.6878	61	41	15.99	N	-1.7439	1	44	38.02	W
North Boundary 110 km Radius Circle	61.7166	61	42	59.61	N	-1.6275	1	37	39.03	W
	61.7492	61	44	56.94	N	-1.4605	1	27	37.91	W
	61.7746	61	46	28.58	N	-1.2878	1	17	16.13	W
	61.7926	61	47	33.44	N	-1.1079	1	6	28.32	W
	61.8034	61	48	12.27	N	-0.9271	0	55	37.50	W
	61.8056	61	48	20.01	N	-0.7455	0	44	43.71	W
	61.8011	61	48	3.87	N	-0.5661	0	33	58.02	W
	61.7879	61	47	16.43	N	-0.3843	0	23	3.63	W
	61.7673	61	46	2.21	N	-0.2062	0	12	22.41	W
	61.7392	61	44	21.05	N	-0.0336	0	2	0.94	W
D	61.7325	61	43	56.91	N	0.0000	0	0	0.00	W
E	61.4316	61	25	53.62	N	0.0000	0	0	0.00	W
F	60.8193	60	49	9.49	N	-0.7378	0	44	16.05	W
South Boundary 2 km Radius Circle	60.8175	60	49	2.88	N	-0.7380	0	44	16.82	W
	60.8159	60	48	57.09	N	-0.7385	0	44	18.67	W
	60.8139	60	48	49.98	N	-0.7396	0	44	22.58	W
	60.8128	60	48	46.20	N	-0.7403	0	44	24.90	W
	60.8114	60	48	41.14	N	-0.7414	0	44	29.13	W
	60.8100	60	48	35.95	N	-0.7431	0	44	35.15	W
	60.8085	60	48	30.71	N	-0.7450	0	44	41.88	W
	60.8074	60	48	26.65	N	-0.7469	0	44	48.75	W
	60.8065	60	48	23.32	N	-0.7486	0	44	55.08	W
	60.8053	60	48	19.26	N	-0.7512	0	45	4.44	W
	60.8043	60	48	15.48	N	-0.7540	0	45	14.23	W
	60.8034	60	48	12.26	N	-0.7570	0	45	25.20	W
	60.8026	60	48	9.46	N	-0.7602	0	45	36.81	W
	60.8020	60	48	7.13	N	-0.7639	0	45	50.06	W
	60.8016	60	48	5.65	N	-0.7672	0	46	1.94	W
	60.8013	60	48	4.72	N	-0.7706	0	46	14.30	W
	60.8012	60	48	4.26	N	-0.7744	0	46	27.90	W
	60.8013	60	48	4.65	N	-0.7787	0	46	43.28	W
	60.8016	60	48	5.74	N	-0.7824	0	46	56.66	W
	60.8021	60	48	7.56	N	-0.7860	0	47	9.67	W
	60.8027	60	48	9.56	N	-0.7894	0	47	21.83	W
	60.8035	60	48	12.43	N	-0.7925	0	47	33.14	W
	60.8044	60	48	15.99	N	-0.7958	0	47	44.92	W
	60.8055	60	48	19.81	N	-0.7986	0	47	54.97	W
	60.8067	60	48	24.11	N	-0.8013	0	48	4.84	W
	60.8082	60	48	29.61	N	-0.8040	0	48	14.30	W
	60.8103	60	48	36.92	N	-0.8069	0	48	24.67	W
	60.8126	60	48	45.31	N	-0.8091	0	48	32.79	W
	60.8144	60	48	51.75	N	-0.8103	0	48	37.10	W
	60.8159	60	48	57.31	N	-0.8111	0	48	39.82	W
60.8176	60	49	3.44	N	-0.8115	0	48	41.54	W	

ANNEX E. FBZ – COORDINATES

Points	LATITUDE					LONGITUDE				
	Decimal	D	M	S	-	Decimal	D	M	S	-
A	60.715	60	42	54.00	N	0.633	0	38	0.00	W
B	60.715	60	42	54.00	N	0.900	0	54	0.00	W
C	61.000	61	0	0.00	N	1.233	1	14	0.00	W
D	61.000	61	0	0.00	N	0.300	0	18	0.00	W

ANNEX F. STAKEHOLDER RESPONSE



ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	Jet2.com
Position in the organisation	Air Traffic Services Administrator
Email	[REDACTED]

Feedback

We believe that the proposed temporary airspace change will not affect our operation adversely.



ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	Directflight Ltd T/A Airtask Group
Position in the organisation	Flight Operations Manager
Email	[REDACTED]

Feedback

Thank you for seeking our comments in connection with ACP 2021-058. You are obviously aware that we operate in the proposed TDA.

1. Our main activity in this area is fisheries surveillance on behalf of the Scottish Government acting through its Marine Scotland Directorate. Patrols operated by manned, ASI F406 aircraft are usually flown between the surface and 4000 ft and may last up to 6 hours. Transits to and from the base aerodromes at Inverness, Kirkwall, Stornoway and Sumburgh to the tasked operating area on any particular day may be flown up to FL100.

Additionally we perform occasional Atmospheric Research flights with a modified BAe 146 up to FL350 in that area on behalf of UKRI/NERC. Sometimes this could be connected with UK civil contingency work in response to oil/gas industry incidents or general monitoring.

We would wish to have precedence of access to the area should either the Scottish government or the UK government direct our tasking there.

We would expect to need to be able to liaise with the agency controlling any sounding launches very quickly should any conflicts of interest occur so that the priorities can be understood and balanced.

2. We note from the documentation that the SaxaVord parallel proposal under ACP-2017-79 is paused and this will potentially expand the area and volume of activity further. This could further limit our access to one of main operating areas which has been deemed "low traffic" by this proposal and is an additional concern.

3. We would like to understand whether any range clearance activity is being planned for such launches and how the attendant risks are to be managed. Separately, even though this volume of space only extends up to 165,000 ft, it nevertheless this would seem to constitute sub-orbital work and as such come under aspects of the Space Industry Act and Space Industry Regulations? Is this correct?

End

[REDACTED]

From: [REDACTED]
Sent: Donnerstag, 27. Januar 2022 14:18
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Temporary airspace change in the UK - Shetland Islands
Follow Up Flag: Follow up
Flag Status: Completed

Hi [REDACTED]

Re the magnitude of risk from undersea petroleum leaks is probably best estimated by OPRED. I'm speaking from experience of several enquiries and one big incident in the last 10 years. That was from the Elgin platform in 2012. My feeling is, yes the risk is low but these incidents do occur.

We would certainly endorse a future DACS as giving the most flexibility for our operations and thank you for taking up the question of the effectiveness of the NOTMAR with SaxaVord / Saxa Vord.

Regards,

[REDACTED]

[REDACTED]

Flight Operations Manager

[REDACTED]
[REDACTED]
[REDACTED]
www.airtask.com

Regus House,
Fairbourne Drive,
Atterbury
Milton Keynes
Buckinghamshire
MK10 9RG



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From: [REDACTED]
Sent: 27 January 2022 11:48
To: [REDACTED]
Cc: [REDACTED]
[REDACTED]
Subject: RE: Temporary airspace change in the UK - Shetland Islands

Hi [REDACTED]

Thank you for the further insights.

We see the problem with a leakage in the pipelines. If we knew the probability of such an event, we could estimate the combined probability of such event occurring while the TDA is active. From your experience, is it something that happens a couple of times per years, or maybe every two months, or maybe every two years? This could be very useful for us to assess the risks on our side as well. I will contact the CAA to see if they have already a priority channel for such an event.

Regarding the NOTMAR part, HyImpulse probably does not have the whole picture there. The marine license and the NOTMARS are managed again by Saxa Vord, so the spaceport could provide more detailed information. The navigational risk assessment without about 90km from the launch site was part of the documentation required for the marine license. We are also aware that the TDA can have a Danger Area Crossing Service (DACS) or Danger Area Activity Information Service (DAAIS). We are not planning to have it for this proposal, but the CAA is investigating this possibility with Saxa Vord, at least for the permanent airspace change proposal. As far as I know, we are not planning to use the RAF radar you mentioned (but maybe Saxa Vord knows more about that as well).

I believe that it can be useful to have a combined call with Saxa Vord to address these items. I've informed them this morning about the concerns of Airtask, so they are aware. I will get back to you when I have some news from their side.

Best regards,

[REDACTED]

Sent: Donnerstag, 27. Januar 2022 11:21

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED],

Thank you for your very quick response.

I imagine the oil and gas community will be sanguine about the activity until they need to investigate an incident in the area e.g a pipeline leak. This is obviously not a day to day risk but nevertheless has occurred. I'm sure that in such an event the CAA would invoke a TDA of their own and allow penetration by those agencies they deem necessary.

It is interesting that your safety case for surface activity seems to be based on a NOTMAR. I think it is optimistic to assume that because such a notification is in place then surface traffic will abide by it – particularly fishing activity. I do not believe this principle gives sufficient assurance to other ranges within the UK – which use dedicated clearance resources. Is there a radar head that can clear the area available at the SpacePort? Obviously there is a very capable installation at RAF Saxa Vord – does it provide a picture to the Range Control?

Regarding notice of activation potentially being 4-6 weeks ahead of a launch, this would be of limited assistance for our surveillance activities – which are generally more reactive and targeted with tasking being directed on a daily basis. Our reservations about access remain a concern.

Regards,

[REDACTED]

[REDACTED]
Flight Operations Manager

[REDACTED]
[REDACTED]
[REDACTED]
www.airtask.com

Regus House,
Fairbourne Drive,
Atterbury
Milton Keynes
Buckinghamshire
MK10 9RG



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From: [REDACTED]

Sent: 27 January 2022 09:06

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Thank you for your response.

We understand that your business might be highly impacted by our activities north from the Shetlands. I'd like to provide you some background information based on the feedback we've got so far from other operators.

We proceeded to inform the UKRI/NERC, the Oil & Gas Authority, the OPRED and Oil & Gas UK about our activities in the area. The UKRI didn't raise any particular objections. A warning has been released by the OPRED for the oil and gas operators in the area. According to the chart provided by the OAG, the TDA covers 5 abandoned offshore wells and a gas pipeline on the seabed, which is unlikely to be damaged by our debris (high depth and low sinking velocity). A similar assessment on Oil&Gas items has also been conducted in parallel by the Sava Vord Spaceport where the launch will take place.

For the maritime activities, a NOTMAR will be released by the Sava Vord spaceport to clear the TDA on sea. Therefore, we don't expect the fisheries to take place when the NOTMAR is active, at least in the area close to the launch site. However, this point could be checked with Saxa Vord directly. The TDA itself will be activated by a NOTAM, which could last a couple of days. A typical launch procedure from our side lasts 3 days. This TDA will be covering a timeslot of 3 months, but it doesn't mean that it will be active for 3 months in a row. However, we can activate the NOTAM multiple times according to our planned activities. When the NOTAM is active, we also do not expect aircraft activities in the TDA.

Based on the information provided about, I can provide some answers to your points:

1. As part of the process of getting the TDA active, we are expected to engage in advance with potential stakeholders (like Airtask) who might be highly impacted by the TDA. We don't know if there are procedures in place to assign precedence of access in the area, or if this is agreed between the Scottish Government, the UK Government and the Civil Aviation Authority (CAA) which is authorizing the TDA. However, we believe that our air change proposal would be not critical for your business, as we might operate only a couple of days in a row. We could reach an agreement to inform you in advance of planned activities and a possible activation of the TDA (let's say, 4-6 weeks in advance?). We are definitely open on this point.
2. The Saxa Vord Space Center is planning to apply for a second TDA (probably with larger extension than our proposal) to cover the activities of its potential customers. This should be in the short term as well. For the long term, they plan to request a permanent airspace change on the area to conduct frequent launch operations. In both cases, Saxa Vord is required to contact the affected stakeholders. Now that we know the potential impact on your business, we will suggest Saxa Vord to contact you soon.
3. The range activities are also performed by Saxa Vord, so I will have to pass this point to them for further details. However, when applying for a spaceport license and a range license it is required to provide a safety case and emergency plans to manage the risks on ground and on air. On the second point, it is correct, the next activities are planned to extend the area above 45 km and therefore being regulated by the SIA 2018 and the Space Industry Regulations 2021. However, this is a separate CAA application process.

I hope I could provide you with a better insight on our activities. In the meantime, I will contact Saxa Vord and raise attention on this matter.

Let us know if you have further concerns that we should address.

Best regards,

[REDACTED]
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

[REDACTED]
[REDACTED]
Web: www.hyimpulse.de

*Hylmpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

*Data protection notice: Information on the collection and processing of personal data can be found in our transparency statement at:
http://hyimpulse.de/images/allgemein/Transparency_Statement_Extern_en.pdf*

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From: [REDACTED]
Sent: Donnerstag, 27. Januar 2022 09:00
To: [REDACTED]
Cc: [REDACTED]
[REDACTED]
[REDACTED]
Subject: RE: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Thank you for including us in your targeted response campaign. Please find attached our feedback.

Regards,

[REDACTED]
[REDACTED]
Flight Operations Manager

[REDACTED]
[REDACTED]
[REDACTED]
www.airtask.com
Regus House,
Fairbourne Drive,
Atterbury
Milton Keynes
Buckinghamshire
MK10 9RG



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From: [REDACTED]
Sent: 03 January 2022 13:20
[REDACTED]
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

To the kind attention of the Airtask Group:

HyImpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about HyImpulse's aim and why we requested an airspace change using this [link](#).


The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

HyImpulse wishes you a happy New Year and a great start in 2022!

In behalf of HyImpulse,


Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: 
Web: www.hyimpulse.de

*HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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http://hyimpulse.de/images/allgemein/Transparency_Statement_Extern_en.pdf*

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ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	Bristow SAR, Sumburgh
Position in the organisation	Chief Pilot
Email	[REDACTED]

Feedback

Bristow Sumburgh SAR conduct Search and Rescue (SAR) operational and training flights from Sumburgh airport on behalf of HM Coastguard, night and day, 7 days a week, 365 days of the year. Our normal area of operation is the whole of Shetland and Orkney, including operations with offshore vessels and to oil platforms in the East Shetland basin, the Clair field and to the south east of Shetland.

We should be able to plan all training flights to deconflict with the proposed airspace changes without issue.

Operational SAR taskings can take us to persons and vessels in distress anywhere, both on and offshore, and require a rapid response. In order to safely deconflict operational flights, we would seek to set up a danger area crossing service from the appropriate controlling authority (probably Sumburgh Radar in this case). This would allow co-ordination of emergency flights through the danger area as soon as safely possible.

Additionally, it would be helpful to have contact details of the operations room for the spaceport, to enable direct dialogue between the duty SAR commander/crew and spaceport staff if required.

Ideally, if a launch from Saxa Vord was scheduled when a SAR tasking was required within the TDA (which is a relatively small chance), we would look to either delay the SAR operation or route around the TDA, or else delay the launch until the SAR operation was clear of the TDA if this were possible, especially in situations where life was at risk.

[Redacted]

From: [Redacted]
Sent: Dienstag, 4. Januar 2022 20:50
To: [Redacted]
Cc: [Redacted]
Subject: Re: Temporary airspace change in the UK - Shetland Islands
Attachments: Targeted Engagement Response Form.pdf; TDA ACP-2021-058.pdf

Hi [Redacted],

Thank you for the email. Having engaged on this matter previously, I can confirm that any TDA that follows notification via the NOTAM system will work for UKSAR, as long as we have direct comms with the controlling authority and have access to the TDA in times of SAR emergency (as per any UK TDA).

If you have any further Q's, please don't hesitate to contact me.

[Redacted]

For info.

[Redacted]

[Redacted]
Flight Operations Manager
UK Search and Rescue

Bristow Helicopters
Dyce Avenue, Dyce
Aberdeen
AB21 0LQ

[Redacted]  [Redacted]
[Redacted]

Confidence in flight. Worldwide.

From: [Redacted]
Sent: 03 January 2022 13:25
To: [Redacted]
Cc: [Redacted]
Subject: Temporary airspace change in the UK - Shetland Islands

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear [Redacted]

Hylmpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,


Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: 
Web: www.hylmpulse.de

*Hylmpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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http://hylmpulse.de/images/allgemein/Transparency_Statement_Extern_en.pdf*

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[REDACTED]

From: [REDACTED]
Sent: Mittwoch, 23. Februar 2022 09:36
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning [REDACTED]

Thanks for your reply, we look forward to hearing from you over the coming months.

Best regards

[REDACTED]

From: [REDACTED]
Sent: 23 February 2022 07:51
To: [REDACTED]
Subject: RE: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

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Dear [REDACTED]

Thank you for your response!

We are in the phase of defining the procedures of activation/deactivation of the danger area with the spaceport, and I have informed Saxa Vord about the opportunity to coordinate the SAR ops with the Bristow group. We got a similar request from Airtask Group operating in the area, so we can definitely combine the communication for both channels. Our launch is foreseen for late summer or autumn this year. We will be able to provide you more details about our launch procedures and communication channels in the next months.

From the regulations, we understand that a DACS could be offered for a TDA but it is not mandatory. For the first two suborbital launches of HyImpulse we do not foresee to offer this service. However, it is an option that it is already consider for future operations, when other players will start launching from Saxa Vord.

If this is ok for you, we can get back to you with more information in the upcoming months.

Best regards,

[REDACTED]
Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]
Phone: [REDACTED]
Web: www.hyimpulse.de

HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043

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From: [REDACTED]
Sent: Dienstag, 22. Februar 2022 17:43
To: [REDACTED]
Subject: RE: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Good Afternoon

Please find attached a response form for the proposed TDA around Saxa Vord.

In summary, we are very keen to work with you to make this work as safely and efficiently as possible. Our only area of concern, would be if the TDA were set up during the time of a search and rescue operation in that area. I believe we can resolve any conflicts of this nature through open lines of communication between ourselves, the operations centre for Saxa Vord and the controlling air traffic authority.

Best regards

[REDACTED]
Chief Pilot
Sumburgh SAR
Hangar 2 Sumburgh Airport
Shetland
ZE3 9JP

From: [REDACTED]
Sent: 18 February 2022 11:38
To: [REDACTED]
Subject: Fw: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

FYI

[REDACTED]
Flight Operations Manager
UK Search and Rescue

Bristow Helicopters

Dyce Avenue, Dyce

Aberdeen

AB21 0LQ



Confidence in flight. Worldwide.

From: [REDACTED]
Sent: 18 February 2022 11:33
Cc: [REDACTED]
Subject: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear all,

Hylmpulse contacted your organization at the beginning of January 2022 to inform you about the establishment of a Temporary Danger Area in the Shetlands. We are contacting you today to inform you about a change in our TDA. Please see the attached file **TDA ACP-2021-058 - Modifications.pdf** for further details about the new geometry.

What has changed?

There are two minor changes in the shape of the TDA:

- The extension of the northern boundary of +10km
- The modification of the north-east boundary

Both changes are justified in our flight safety analysis, currently reviewed by the Civil Aviation Authority in the UK. Moreover, we updated the activation time to be

- August – October 2022 (previously July – September 2022)

to accommodate the needs of the Saxa Vord Spaceport. We are in contact with EUROCONTROL to evaluate the impact on the air traffic between Aug-Oct. We are basing our assessment on a conservative case (activation 3 days per week using a launch window of 4-6 hours only).

What do you need to do?

If you've already provided us with feedback and our change to the TDA is still not impacting your business, you can acknowledge this change, but you don't need to provide us new feedback.

If you haven't provided feedback yet, please use the document **Targeted Engagement Response Form.pdf** for your assessment. Please provide your Engagement Response by replying to this email not later than **March 18th 2022, 11:59 pm CET**.

If you already got in touch with the Saxa Vord spaceport for a similar request, please let us know, so that we can align with them accordingly.

Do not hesitate to contact us in case you require further information from our side.

In behalf of Hylmpulse,



Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: 
Phone: 
Web: www.hyimpulse.de

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ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	British Helicopter Association
Position in the organisation	CEO
Email	[REDACTED]

Feedback

The BHA currently has no objections to this ACP



ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	CHC Helicopters
Position in the organisation	Manager Flight Operations
Email	[REDACTED]

Feedback

No problem for our helicopter operations.

From: [REDACTED]
Sent: Dienstag, 8. Februar 2022 13:18
To: [REDACTED]
Subject: RE: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Follow Up Flag: Follow up
Flag Status: Flagged

Dear [REDACTED]

Many thanks for your reminder.

I have communicated the proposal and response form to members highlighting the closing date of 28th Feb.

With ERA airlines operating from regional and more remote airports, this is of particular interest. ERA will not be submitting a response on behalf of our membership, but will leave the feedback to the individual airlines that this would impact.

We hold regular operations group meeting with our membership, and to that end, perhaps during the course of this year HyImpulse would consider updating our members with your future plans?

I look forward to your response.

Kind regards,

[REDACTED]
[REDACTED]
Head of Operations, Safety & Infrastructure
ERA (European Regions Airline Association)



Head Office: Park House, 127 Guildford Road, Lightwater, Surrey, GU18 5RA, United Kingdom
Main: +44(0)1276 856495 www.eraa.org twitter.com/eraaorg facebook.com/eraaorg
Brussels Office: ERA (European Regions Airline Association) Office 50.710,
Eurocontrol, Rue de la Fusée, 96, 1130 Brussels, Belgium

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From: [REDACTED]
Sent: 24 January 2022 08:44
Cc: [REDACTED]
Subject: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear all,

HyImpulse contacted your organization at the beginning of January 2022 to inform you about the establishment of a Temporary Danger Area in the Shetlands (see original email below). We are getting back to you today because we haven't received your feedback yet.

You can find more information about HyImpulse's aim and why we requested an airspace change using this [link](#). A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**). The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than **February 28th 2022, 11:59 pm CET**.

If you were already contacted by the [SaxaVord spaceport](#) for a similar request, please let us know, so that we can align with them accordingly.

Do not hesitate to contact us in case you require further information from our side.

In behalf of HyImpulse,

Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [\[REDACTED\]](#)
Phone: [\[REDACTED\]](#)
Web: www.hyimpulse.de

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From: [\[REDACTED\]](#)
Bcc:
Cc: [\[REDACTED\]](#)
Subject: Temporary airspace change in the UK - Shetland Islands

Dear all,

HyImpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about HyImpulse's aim and why we requested an airspace change using this [link](#).


The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,


Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: 
Web: 

*Hylmpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
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[REDACTED]

From: [REDACTED]
Sent: Dienstag, 4. Januar 2022 10:36
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Please see our response below

Name- [REDACTED]
Organisation - Flylogix
Position- Operations Director
Email - [REDACTED]
Response - The proposed TDA will have no impact on the feasibility or safety of Flylogix planned operations in Shetland.

■

On Mon, 3 Jan 2022 at 13: [REDACTED] wrote:

Dear [REDACTED]

Hylmpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of HyImpulse,

[REDACTED]
Space Licensing and System Engineer

HyImpulse Technologies GmbH

Wilhelm-Maybach-Straße 5

74196 Neuenstadt am Kocher

Germany

[REDACTED]
Web: www.hyimpulse.de

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--

[REDACTED]
Operations Director
Flylogix Limited

[REDACTED]
The logo for Flylogix, featuring the word "FLYLOGIX" in a bold, italicized, sans-serif font. The "F" is significantly larger and more stylized than the other letters.

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Registered office: Merlin House, [4 Meteor Way, Fareham, Lee-on-the-Solent PO13 9FU](https://www.flylogix.com/locations/4-meteor-way)



ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	Sumburgh Airport (ATC)
Position in the organisation	DSATCO
Email	[REDACTED]

Feedback

The proposed TDA is outwith our area of responsibility and is unlikely to have any impact on our operations. Our current approach radar service is provided by NATS in Aberdeen who you will have already engaged with. Later this year there is a plan to transition to an in-house radar unit (SARF) which you may not have picked up on during your engagement process. I have passed on the information to that unit for comment.

From Sumburgh Airport's perspective we, have no objection to the proposed TDA.

Following are comments from Isavia ANS, the Air Navigation Service Provider for the Reykjavik Control Area (CTA), which includes the Nuuk (BGGL) and Reykjavik (BIRD) flight information regions (FIR) and the impacted area.

In the statement of need made by Hyimpulse it is stated that a launch from Shetland is particularly suitable from a flight safety perspective due to the low volume of air traffic. Upon review of the planned launch timings and the impacted area Isavia ANS wishes to inform Hyimpulse that this assessment is incorrect.

Effects on operations/traffic:

The area impacted within BIRD FIR is one of the most frequently used air traffic gateways into the Reykjavik CTA. The estimated percentage of aircraft entering the impacted area is 16% of all total traffic flying within BIRD FIR. On an average day it can be expected to impact 76 flights, and over 230 flights over a 3-day period. These aircraft would have to reroute either north of the impacted area or decide to fly south of the launch position and to enter Reykjavik CTA later or not at all, thereby, flying south of Shetland and into another FIR. In all cases, this would mean a reduction in revenues for Isavia ANS, increased workload for those FIR's taking on the extra traffic and an increase in flight time and fuel burn and greenhouse gas emissions for those airlines needing to operate on a longer and less optimum route. The impact on increased workload for air traffic controllers and safety has not been assessed but could be considerable should traffic levels align with current projections.

Another item of consideration is that the traffic volume depends on forecasted high level winds. These numbers are, on average, over 400 aircraft on a busy day. However, this number could be a great deal higher with favorable winds. The time period in question, August to October, are among the busiest months of the year with regard to traffic.

Financial Implications:

Regarding the financial part, Isavia ANS service fees are calculated using flown kilometers within Reykjavik CTA. For an average day in July, estimated financial impact on the company could be between 4,000 GBP – 16,000 GBP (12,000 GBP – 49,500 GBP for 3 days) depending on airlines decisions on where they would reroute their fleet.

For an industry that has suffered tremendous financial losses due to the COVID pandemic over the last two years, therefore, any negative financial impact will be proportionally more significant to our operations at a time when we can ill afford any financial setbacks. As a result, this matter is of great concern to us and viewed with the utmost severity.

Recommendations:

Isavia ANS recommends that launch times be held from 22pm until 8am in order to minimise effects on air traffic. Further, attached to this email please find a video showing the flow of traffic within the Reykjavik CTA. It is our hope that this video will help us to better show our operational concerns regarding your proposed launch area and times.

Further information:

Within the impacted area there is a smaller low-level area, called the North Sea Area within both the Reykjavik and Norway FIR's with an upper flight level of 8500 feet. This area is established to serve helicopters travelling to and from oil rigs in the area. The aircraft flying in this area are uncontrolled aircraft that, nevertheless, could be affected.

Regulator:

The regulator for Reykjavik FIR is the Icelandic Transport Authority (ICETRA) <https://www.icetra.is/>.

From: [REDACTED]
Sent: Montag, 14. März 2022 13:54
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Follow Up Flag: Follow up
Flag Status: Flagged

Hi [REDACTED]

Here you can see that the traffic in average the same over the weekdays:

	B	C	J
1	Year and Month	Weekday	Percentage of Flights in HyImpulse_TDA_New
2	2019-08	Monday	19,52%
3	2019-08	Tuesday	14,81%
4	2019-08	Wednesday	17,43%
5	2019-08	Thursday	15,18%
6	2019-08	Friday	17,04%
7	2019-08	Saturday	16,04%
8	2019-08	Sunday	19,11%
9			
10	2019-09	Monday	16,35%
11	2019-09	Tuesday	16,72%
12	2019-09	Wednesday	15,19%
13	2019-09	Thursday	15,83%
14	2019-09	Friday	16,02%
15	2019-09	Saturday	17,10%
16	2019-09	Sunday	16,70%
17			
18	2019-10	Monday	13,54%
19	2019-10	Tuesday	14,72%
20	2019-10	Wednesday	15,53%
21	2019-10	Thursday	17,00%
22	2019-10	Friday	14,14%
23	2019-10	Saturday	15,19%
24	2019-10	Sunday	15,28%

Regarding the traffic below 8500 feet you think you should contact Sumburg Radar (Aberdeen ATSU), See AIP United Kingdom 2.2.

Međ kveđju / Best regards,

[REDACTED]
Manager ATS Procedures



www.isavia.is

From: [REDACTED]
Sent: fimmtudagur, 10. mars 2022 11:29
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Hi [REDACTED]

Apologies for this follow up email, I forgot a couple of questions in my previous email.

- Have you observed in the analysis whether there is a particular day of the week with less traffic or if it stays in average the same?
- Has Isavia any suggestion for HyImpulse about how to assess the traffic in the low-level area up to 8,500 ft? Any suggestion will be appreciated.

Thank you again for your time!

Best regards,

From: [REDACTED]
Sent: Donnerstag, 10. März 2022 08:54
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Attached is the answer from Isavia ANS regarding the impact of the launch will likely have on traffic in the Reykjavik CTA and the effect on the company.
I have also attached a video showing traffic flow over 24 hours in Sept 2018. There you can see how much lower the traffic volume is during the night than the daytime.

Best regards,

[REDACTED]
Manager ATS Procedures



www.isavia.is

Sent: föstudagur, 18. febrúar 2022 14:11

To: [REDACTED]

Cc: [REDACTED]

Subject: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

After consultation with several stakeholders in the past weeks, we decided to slightly modify the shape of our proposed TDA. Please see the attached file **TDA ACP-2021-058 - Modifications.pdf** for further details about the new geometry. What is interesting for Iceland is the modification of the activation times. More information below.

What has changed?

There are two minor changes in the shape of the TDA:

- The extension of the northern boundary of +10km
- The modification of the north-east boundary

Both changes are justified in our flight safety analysis, currently reviewed by the Civil Aviation Authority in the UK. Moreover, we updated the activation time to be

- August – October 2022 (previously July – September 2022)

to accommodate the needs of the Saxa Vord Spaceport. We are basing our assessment on a conservative case (activation of the TDA for 3 days per week using a launch window of 4-6 hours/day only - daytime). To increase flexibility for air traffic and Search and Rescue ops in the area, confirmation of activation will be given about 24h in advance.

What do you need to do?

You can proceed with the internal assessment, if possible, based on the new TDA and its activation time. Please use the document **Targeted Engagement Response Form.pdf** to provide the feedback. Because of the last change, we have extended our feedback deadline to **March 18th 2022, 11:59 pm CET**.

Anything else to know?

We are in contact with EUROCONTROL to evaluate the impact on the air traffic between Aug-Oct. Because we are requesting the TDA in the airspace of [NATS](#), we would also need to define a Flight Buffer Zone (FBZ). Information about the FBZ can be found in the ERNIP Part 3 document from EUROCONTROL (in particular: Section 6.1.2.6 and Section 12.1 in Annex 4). We are initiating the engagement with EUROCONTROL and NATS first. Norway and Iceland will be involved for the assessment of the traffic routes in a second stage. The analysis will be performed by EUROCONTROL.

Let me know if you would require further information. In the meantime, have a great weekend!

[REDACTED]
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]
Phone: [REDACTED]
Web: www.hyimpulse.de

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From: [REDACTED]
Sent: Freitag, 4. Februar 2022 09:54
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

This is a much bigger area within our airspace.

We have just started looking into this matter with the "old" airspace you sent us, and at the first glance it seems that for a three day period we would have to reroute about 230 aircraft because of this. That multiplies with the number of three day period we would NOTAM this danger area. If the area is this much bigger the number will go up for sure.

Regarding the Norway airspace, it will have the same affect on traffic flying in the area. We would not be able to accept any traffic flying into our area where the Danger Area will be established so close to theirs, so Norway would have to reroute all the aircraft anyway.

I will be away next week but after that I will continue to examine this and get back to you.

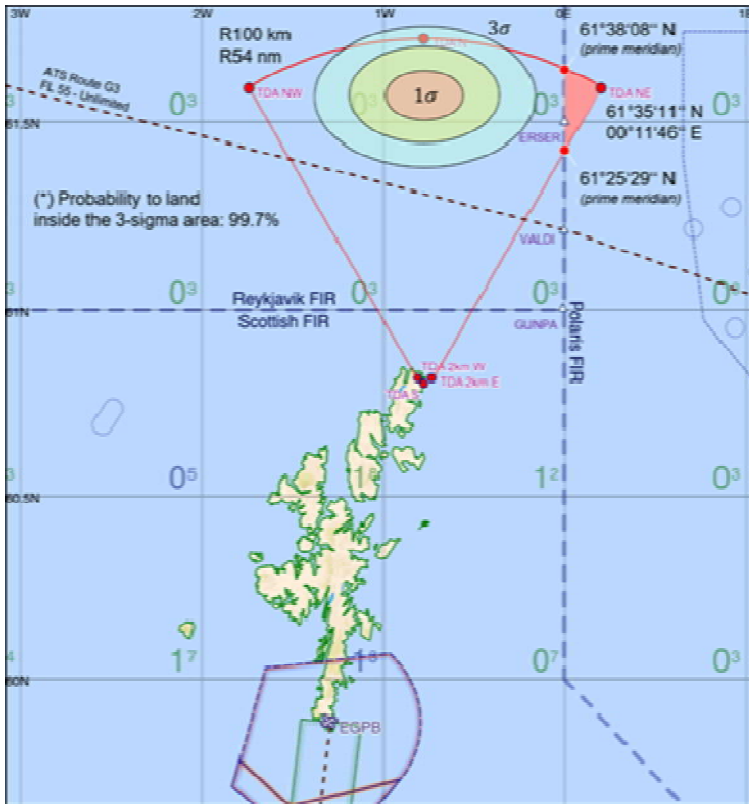
Regards

From: [REDACTED]
Sent: föstudagur, 4. febrúar 2022 08:38
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

I have a quick follow up from our side.

We are waiting for the outcome of a consultation between the Civil Aviation Authorities of the UK and Norway, regarding our eastbound boundary entering the Norwegian FIR. We attached here below a map for your convenience, showing our current TDA.



According to our Flight Safety Analysis for this flight configuration, the proposed TDA is extremely conservative. It extends beyond the 3-sigma dispersion of the impact analysis we did (the blue ellipses in the map). Consequently, we are currently changing our TDA to exclude the upper right corner entering the Polaris FIR and avoid the engagement with Norway at this stage. As you can see from the map, we cannot avoid an engagement with Iceland, because our impact zone falls completely within the Reykjavik FIR.

Let us know if you have any news from your side about how we could proceed. We intend to cooperate in the interest of both parties involved in the process.

Best regards,

Space Licensing and System Engineer

HyImpulse Technologies GmbH
 Wilhelm-Maybach-Straße 5
 74196 Neuenstadt am Kocher
 Germany

E-Mail: [Redacted]
 Phone: [Redacted]
 Web: www.hyimpulse.de

HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
 Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043

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From: [Redacted]
Sent: Montag, 24. Januar 2022 13:29
To: [Redacted]

Cc: [REDACTED]

Subject: RE: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED],

For us to evaluate the effect on our traffic we need a little more information.

Please confirm the dates and time of day, with the time length of the NOTAM. Also please confirm you have contacted the ANSP in Norway (AVINOR) and the Aberdeen ATSU (Sumburg Radar) since this is affecting both Polaris ACC Stavanger and North Sea Area IV.

Með kveðju / Best regards,

[REDACTED]

Manager ATS Procedures

[REDACTED]

[REDACTED]



[REDACTED]

www.isavia.is

From: [REDACTED]

Sent: mánudagur, 24. janúar 2022 12:17

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Thank you for your reply.

Let us know if you need further information from our side to proceed with the assessment. To anticipate a bit the events in the future, the [SaxaVord spaceport](#) is also planning to apply to a TDA [REDACTED] for a permanent airspace change. It won't be the same area requested for our TDA as Hylmpulse, but a similar coverage is foreseen. However, they don't have a detailed description yet.

If you think that is advisable to get into the loop the SaxaVord spaceport for the assessment on your side, let us know. We could initiate the coordination on our side.

Best regards,

[REDACTED]

From: [REDACTED]

Sent: Montag, 24. Januar 2022 13:08

To: [REDACTED]

[REDACTED]

Subject: RE: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

I just haven't found the time to work on an answer, sorry about that. It is foreseen that this request would have a huge impact on our airspace.

We will have to examine this request before answering.

Best regards,

[REDACTED]
Manager ATS Procedures



[REDACTED]
www.isavia.is

From: [REDACTED]
Sent: mánudagur, 24. janúar 2022 08:44
Cc: [REDACTED]
Subject: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear all,

Hylmpulse contacted your organization at the beginning of January 2022 to inform you about the establishment of a Temporary Danger Area in the Shetlands (see original email below). We are getting back to you today because we haven't received your feedback yet.

You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#). A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**). The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than **February 28th 2022, 11:59 pm CET**.

If you were already contacted by the [SaxaVord spaceport](#) for a similar request, please let us know, so that we can align with them accordingly.

Do not hesitate to contact us in case you require further information from our side.

In behalf of Hylmpulse,

[REDACTED]
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]
Phone: [REDACTED]
Web: www.hyimpulse.de

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From: [REDACTED]
Bcc:
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

Dear all,

Hylmpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

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We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,

[REDACTED]
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
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E-Mail: [REDACTED]
Web: www.hyimpulse.de

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[REDACTED]

From: [REDACTED]
Sent: Freitag, 7. Januar 2022 15:56
To: [REDACTED]
Cc: [REDACTED]
Subject: AW: Temporary airspace change in the uk Shetland isles

Dear [REDACTED],

Thank you for your response.

HyImpulse is assessing the environmental impact at Lambaness Unst together with the Shetland Space Centre (<https://shetlandspacecentre.com/>). Is it possible that you have been contacted by them before? There are procedures in place to ensure that the testing or launching of the rocket will not be harmful for the local animals, or at least that an insurance is covering any potential loss. However, I will consult with the Space Centre to clarify this point.

I will keep you updated.

Best regards,

[REDACTED]

-----Ursprüngliche Nachricht-----

Von: [REDACTED]
Gesendet: Freitag, 7. Januar 2022 15:19
An: [REDACTED]
Betreff: Temporary airspace change in the uk Shetland isles

Hi I refer to the email I received recently about testing at Lambaness Unst ,as this area is a common grazing where sheep are kept,can you confirm it is safe for them to remain inside the danger area while the testing takes place.

Kind regards

[REDACTED]
([REDACTED])

Sent from my iPad

[REDACTED]

From: [REDACTED]
Sent: Dienstag, 4. Januar 2022 14:01
To: [REDACTED]
Cc: [REDACTED]
Subject: Airspace change

Afternoon [REDACTED]

I closed that ticket to take [REDACTED] out of the correspondence (he can't be deleted from the conversation in Zendesk as the originator).

We see no impact on Loganair operations from your proposed TDA.

Feel free to get in touch if required.

Regards,

[REDACTED]
Manager Flight Support

Tel: [REDACTED]
E-Mail: [REDACTED]
Web: <http://www.loganair.co.uk>



Safety Spotlight — Let's stop the spike, with face coverings, hand hygiene and making safer choices.

[REDACTED]

From: [REDACTED]
Sent: Dienstag, 4. Januar 2022 13:20
To: [REDACTED]
Subject: RE: Temporary airspace change in the UK - Shetland Islands

Hi,

The proposal does not affect our operation.

Kind regards,

[REDACTED]



[REDACTED]
UK Flight Operations Manager
[REDACTED]

From: [REDACTED]
Sent: 04 January 2022 09:49
To: [REDACTED]
Subject: FW: Temporary airspace change in the UK - Shetland Islands



[REDACTED]
Base Manager Aberdeen
[REDACTED]

[REDACTED]
Sent: 03 January 2022 13:56
To: [REDACTED]
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

To the kind attention of the NHV Group:

Hylmpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#).

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The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,

██████████
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: ██████████
Web: www.hylmpulse.de

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ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	Northern Lighthouse Board
Position in the organisation	Navigation Officer
Email	[REDACTED]

Feedback

Northern Lighthouse Board are the General Lighthouse Authority (GLA) for Scotland and the Isle of Man, we operate two buoy tender vessels (within the GLA fleet) and a contract helicopter to access our assets for maintenance and project works.

Two of our fixed assets are within, or very close to, the proposed TDA and can be occupied by NLB or Contractor personnel for periods extending from a few hours to several weeks. There are occasions where we need to access these sites at short notice due to outages or to prevent an outage, therefore having the correct contact details of those involved in the planned activities from Saxavord Space Centre is essential.

Your proposed operations may impact on our activities in both the marine and air environments, however we do not foresee there being any conflict as your mitigation measures (NOTAM) will notify our Helicopter provider (PDG Helicopters) of your activities.

We welcome further engagement as your plans develop and please include [REDACTED] [REDACTED] (NLB Planning Co-ordinator) on [REDACTED] and Delivery and Planning inbox on [REDACTED], as [REDACTED] have oversight of the GLAs fleet of vessels and aircraft.



ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

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How to respond

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Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	Ocean Kinetics Ltd
Position in the organisation	Managing Director
Email	[REDACTED]

Feedback

We have no objection with the proposed Temporary Danger Area and wish you every success with the project.

[REDACTED]

From: [REDACTED]
Sent: Dienstag, 22. Februar 2022 14:08
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Good afternoon [REDACTED],

PDG Aviation services have no objection to ACP-2021-058.

Kind regards,

From: [REDACTED]
Sent: 24 January 2022 08:44
Cc: [REDACTED]
Subject: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear all,

Hylmpulse contacted your organization at the beginning of January 2022 to inform you about the establishment of a Temporary Danger Area in the Shetlands (see original email below). We are getting back to you today because we haven't received your feedback yet.

You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#). A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**). The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than **February 28th 2022, 11:59 pm CET**.

If you were already contacted by the [SaxaVord spaceport](#) for a similar request, please let us know, so that we can align with them accordingly.

Do not hesitate to contact us in case you require further information from our side.

In behalf of Hylmpulse,

[REDACTED]
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]
Phone: + [REDACTED]
Web: www.hyimpulse.de

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From: [REDACTED]
Bcc:
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

Dear all,

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The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

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Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,

[REDACTED]
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]
Web: www.hyimpulse.de

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[REDACTED]
Chief Pilot



W: www.pdgaviationservices.com

PLM Dollar Group Limited t/a PDG Aviation Services
The Heliport, Dalcross, Inverness, IV2 7XB

How to avoid catching or spreading coronavirus

Do

- wash your hands with soap and water often – do this for at least 20 seconds
- always wash your hands when you get home or into work
- use hand sanitiser gel if soap and water are not available
- cover your mouth and nose with a tissue or your sleeve (not your hands) when you cough or sneeze
- put used tissues in the bin straight away and wash your hands afterwards
- try to avoid close contact with people who are unwell
- Maintain a distance of 2m between you and other people

Don't

- do not touch your eyes, nose or mouth if your hands are not clean

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Please visit our website at www.pdgaviationservices.com



ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

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Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	Pure Energy Centre
Position in the organisation	Manager
Email	[REDACTED]

Feedback

Pure Energy Centre are fully supportive of your application.

Our only comment is that we would assume that all relevant land owners and those within the boundaries indicated in red on your attached diagram have been contacted and consulted.

The Space Port development is, we feel, very good news for the island and we are pleased that HyImpulse Technologies are going to be a part of that journey.

Wishing you all the very best for your future in Unst.

[Redacted]

From: [Redacted]
Sent: Montag, 24. Januar 2022 10:25
To: [Redacted]
Cc: [Redacted]
Subject: RE: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

[Redacted]

Apologies for not getting back sooner, for your awareness Serco are no longer the ANSP holder at Scatsta Aerodrome as it is now non-operational with all traffic moving to Sumburgh Aerodrome.

Many Thanks

[Redacted]

[Redacted] [Redacted]
[Redacted]
[Redacted]
Air – Ops Dir & Acct Mgr [Redacted]
[Redacted]
Serco UK & Europe (Defence) www.serco.com

From: [Redacted]
Sent: 24 January 2022 08:56
To: [Redacted]
Subject: FW: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Serco Business

Good morning [Redacted]

Hope you are well. Please can you respond to the email received below by Serco General Enquiries mail box?

Many thanks

[Redacted]

[Redacted]
[Redacted]

Serco Defence
Serco UK & Europe

[Redacted]
[Redacted]
[Redacted]

From: [Redacted]
Sent: 24 January 2022 08:50

To: [REDACTED]

Subject: FW: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Hi [REDACTED],

Please see e-mail below from our General Enquiries mailbox..i am not too sure if this is something for us really?

Thank you

Kind Regards,

[REDACTED]

From: [REDACTED]

Sent: 24 January 2022 08:44

Cc: [REDACTED]

Subject: [EXTERNAL] [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

ATTENTION EXTERNAL

Dear all,

HyImpulse contacted your organization at the beginning of January 2022 to inform you about the establishment of a Temporary Danger Area in the Shetlands (see original email below). We are getting back to you today because we haven't received your feedback yet.

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Do not hesitate to contact us in case you require further information from our side.

In behalf of HyImpulse,

[REDACTED]

Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]

Phone: [REDACTED]

Web: www.hyimpulse.de

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From: [REDACTED]
Bcc:
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

Dear all,

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In behalf of Hylmpulse,

[REDACTED]
Space Licensing and System Engineer

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ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

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Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	Shetland Flyer Aerial Media
Position in the organisation	Accountable Manager
Email	[REDACTED]

Feedback

This TDA will have very little impact on our business. We do operate unmanned aircraft throughout Shetland including Unst, however we will normally be able to arrange a day when the TDA is not active if we were required to operate in that area in the north east of Unst.

[REDACTED]

From: [REDACTED]
Sent: Montag, 17. Januar 2022 14:32
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Temporary airspace change in the UK - Shetland Islands

Follow Up Flag: Follow up
Flag Status: Flagged

Hello

2Excel Aviation have no adverse comments on this proposal. Good luck with your operations.



[REDACTED]
Director of Flight Operations
2Excel Aviation Ltd

Doncaster Hangar 3 Tel: [REDACTED] | [REDACTED] | Mobile: [REDACTED]
[REDACTED] | www.2excelaviation.com | www.broadswordaviation.com



Aviation from a World-Class Team

Registered Office: The Tiger House | Sywell Aerodrome | Sywell | Northampton | NN6 0BN | Company No: 05391365
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From: [REDACTED]
Sent: 07 January 2022 08:10
To: [REDACTED]
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED],

Hylmpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#).


The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,


Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany


Web: www.hyimpulse.de

*Hylmpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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[REDACTED]

From: [REDACTED]
Sent: Freitag, 7. Januar 2022 14:39
To: [REDACTED]
Subject: Re: Temporary airspace change in the UK - Shetland Islands
Attachments: Targeted Engagement Response Form.pdf; TDA ACP-2021-058.pdf

Dear [REDACTED],
Thanks for this. I sit on NATMAC as a representative of Airfield Operators Group.
I'm sure that you'll have consulted with local airfields and, unless called upon for assistance by a member airfield locally, I won't have a view/objection.
Hope it goes well.
Best regards
[REDACTED]
Chairman A.O.G.

Sent from my iPhone

On 7 Jan 2022, at 12:30, [REDACTED]:

Dear [REDACTED]

Hylmpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,

[REDACTED]
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]
Web: www.hyimpulse.de

*HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	BALPA
Position in the organisation	Chairman, ATS Group
Email	[REDACTED]

Feedback

No comments to make to the proposed plan.

[REDACTED]

From: [REDACTED]
Sent: Sonntag, 9. Januar 2022 21:21
To: [REDACTED]
[REDACTED]
Subject: RE: Temporary airspace change in the UK - Shetland Islands

Thanks for the engagement.
This ACP as described does not impact on the gliding community.
Kind regards
[REDACTED]
BGA

From: [REDACTED]
Sent: 07 January 2022 10:06
To: [REDACTED]
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED],

Hylmpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,

[REDACTED]
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]
Web: www.hyimpulse.de

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Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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[REDACTED]

From: [REDACTED]
Sent: Freitag, 14. Januar 2022 10:25
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Website support #301485: Temporary Danger Area - Air operations Aviation

Follow Up Flag: Follow up
Flag Status: Flagged

Dear [REDACTED]

Thank you very much for your enquiry. Please kindly note that EASA will monitor and oversee the process for the establishment of such danger area with respective impacted ANSP(s), in accordance with its attribution as competent authority.

Best regards,

ATM/ANS Team
Air Traffic Department
European Union Aviation Safety Agency



[REDACTED]
Postal: Postfach 10 12 53, 50452 Cologne, Germany
An agency of the European Union 

[Connect with us](#)

Legal note: EASA cannot provide legally binding interpretations of EU Regulations. This prerogative is reserved for the European Court of Justice and National Courts of the Member States.

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ACP-2021-058 - HyImpulse Sounding Rocket Launch from SaxaVord Spaceport - Shetland

Targeted Engagement with stakeholder

Response Form

Dear Stakeholder,

HyImpulse is applying for a temporary airspace change to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75.

This response form will enable you to provide feedback on the proposal detailed in the CAA Airspace Change portal.

How to respond

Please complete the section below with your feedback and return to [REDACTED]. We also accept email responses as long as they are legible and clearly show name and contact details.

Please respond by 23:59 CET, February 28th 2022.

Feedback

All feedback provided, whether by email or completion of this form, will be uploaded to the CAA Airspace Change Portal and shared with the CAA in its original form, albeit with personal and contacts details redacted in order to protect your privacy.

Many thanks in advance for taking the time to provide feedback on our proposals.

Sincerely,

HYIMPULSE

Name	[REDACTED]
Organisation name	ABL Space Systems
Position in the organisation	Director of Mission and Program Management
Email	[REDACTED]

Feedback

ABL appreciates the opportunity to provide comments for the HyImpulse TDA for SR75 flight operations from SaxaVord Spaceport. ABL has reviewed TDA ACP-2021-058, both original and as modified on February 18, 2022. ABL has no concerns or comments.

Hylmpulse Targeted Engagement Response Form – Met Office Response OFFICIAL

04/02/2022

Dear [REDACTED] (Space Licensing and System Engineer, Hylmpulse Technologies GmbH),

The Met Office launches free-flying unmanned weather balloons, an attached parachute and a small package of meteorological instruments known as a radiosonde. These balloons are in the region of 2 m in diameter, expanding to an estimated 5 m in diameter before bursting. We use Helium as a lifting gas, there is a 60m suspension of fine filament and the standard radiosonde weighs approximately 120g and is about the size of a small bottle of water. Once a week, we also launch ozone soundings, which consist of a larger instrument weighing approx. 600g more with a larger parachute and a more robust sting unwinder.

These balloons are launched from Lerwick Observatory (location: [Observing Systems Capability Analysis and Review Tool \(OSCAR\) \(wmo.int\)](#)) twice daily at 11:15 and 23:15 UTC and occasionally at other times of the day. The launch times are in line with World Meteorological Organisation (WMO) guidance on radiosonde launching. The data are transmitted to the Met Office HQ for use in operational forecasting, numerical weather prediction, climate science and for comparison against satellite observations.

The balloons typically ascend at a rate of approx. 5ms^{-1} to 30-40 km in altitude, where the balloon bursts and the remains descend to earth by parachute. Lower altitude bursts are possible, but less common. The horizontal range and direction are dependent on the winds aloft and can exceed 150 km from the launching point. The total flight time from launch to land is in the region of 200 minutes. The Met Office has an entry in the NATS eAIP under the eAIS ENR 5.3 relating to the launch activities of the site as follows:

Name Lateral Limits	Vertical Limits	Advisory Measures	Authority responsible for information	Remarks Activity times
1	2	3	4	5
LERWICK 601132N 0011437W	Upper limit: UNL	80000 FT and beyond.	Met Office.	Hydrogen or helium-filled balloon off-white to brown/carrying 390 gm radiosonde and parachute. A weekly ozonesonde launch, which is an off-white balloon carrying ozonesonde and parachute launched once a week. Weight 840 gm. Hours: Launched 1115, 2315 and occasionally at other times of the day.

Due to the horizontal and vertical ranges, and the free-flying nature of the balloons, there is the possibility of a balloon sharing the same air space as your device at the same time over the designated areas above the North of Shetland, within your altitude ranges. If desired, the likelihood of an interaction may be reduced, for example by communication between yourselves and the Lerwick Observatory about rocket and balloon launch dates, times and trajectories.

Best regards,

[REDACTED] Radiosonde Network Specialist Upper Air Observations, Technical Services
Met Office Fitzroy Road Exeter EX1 3PB United Kingdom

[REDACTED]
[REDACTED]

[REDACTED]

From: [REDACTED]
Sent: Freitag, 25. März 2022 12:47
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Follow Up Flag: Follow up
Flag Status: Flagged

[REDACTED],

Please see my responses to your comments (in red). I have cc'd Wing Commander [REDACTED] for his awareness, as he is involved in Space activities from a DAATM perspective, as well as myself who deals with the ACP responses.

Best regards,

[REDACTED]

[REDACTED] | SO2 Airspace Plans | Defence Airspace and Air Traffic Management | ~~Aviation House | 1E Beehive Ringroad~~ | Crawley West Sussex RH6 0YR | [REDACTED]
[REDACTED]

From: [REDACTED]
Sent: 18 March 2022 13:07
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Thank you for the detailed response. I've inserted the feedback of MoD in our database.

I would like to provide you already with some information related to the current engagement with Eurocontrol, NATS and Isavia for what concerns the air traffic analysis. I also have some questions related to the procedures where HyImpulse could be involved. I've summarized the points directly from your email, in [blue](#) below.

I thank you in advance for your time.

Best regards,

[REDACTED]

Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]

Phone: [REDACTED]
Web: www.hyimpulse.de

Hylmpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043

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From: [REDACTED]
Sent: Freitag, 18. März 2022 13:02
To: [REDACTED]
Subject: RE: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Good afternoon [REDACTED],

Thank you for giving the MOD the opportunity to respond to ACP-2021-058.

The MOD does not consider that activation of the proposed TDA will have a direct impact to MOD operations within the UK FIR, as the vast majority of the TDA sits outside of it. However, it would have the potential to impact MOD's responsibility to the NATO Air Policing task, which reaches outside the FIR. On that basis, a robust communications chain between the relevant MOD agencies (78 Sqn and ASACS) will be required, to ensure any conflicting aircraft can be notified and the TDA suppressed, if required. A greater understanding of activation timelines would also be required, so MOD can understand how long prior to launch they will be notified and within what timeframe an exact launch time/date is declared.

I understand that Hylmpulse is not involved in the communication between 78 Sqn and ASACS, however Hylmpulse should provide the MOD with more detailed information regarding the activation timelines of the TDA. Is it correct?

Yes, but there will also need to be a communications plan agreed, which defines the direct communications to be available between spaceport and 78Sqn/ASACS. The direct communications would allow MOD units to warn the operators if the integrity of the TDA is, or is about to be, compromised.

Hylmpulse is foreseeing one single launch during the time of activation of the TDA (90 days). At the moment it is not possible for us to define the launch date, because the launch goes in parallel with the development of the Saxa Vord spaceport. We will be able to provide more detailed information about the launch activities and the activation timeline later in summer. Would this be sufficient? This should be sufficient - when the timeline becomes clearer and the launch window is defined, please inform MOD. We are also providing the same information to the CAA. Is it possible for the 78 Sqn to get the details of the activation timeline from the CAA, or would it be preferable to have it communicated by Hylmpulse directly? Preferably directly, so nothing gets lost or misconstrued – if a communications plan is created, this could also include details of who to inform and when. How much time in advance would the MOD require this information? The same as CAA should suffice.

The MOD and NATS hold an agreement as to which Danger Areas are permitted to be activated concurrently, to minimise the impact on the route network. In order to determine the indirect impact of the TDA activation on MOD use of existing Danger Areas, the MOD request clarification of the TDA impact on the route network, as well as information on any agreements that have been reached with the CAA (or higher authority) regarding priority of TDA activation versus impacted activities. If there is no impact to the route network then the impact to MOD Danger Area activity would be nil.

We received a first assessment on the air traffic impact from Iceland (Isavia) as we are mostly contained into the Reykjavik FIR with our activities. We're currently waiting for further assessment from Eurocontrol. In fact, we would like to select a launch window which is minimally impacting the air traffic route (probably early in the morning). I can keep you updated as soon as further info is coming in. That would be appreciated, thank you.

Regarding the priority of other activities on the TDA, for now we are only considering prioritizing the Search And Rescue activities in the area (e.g. Airtask Group and Bristow Group). This agreement is more on the operations level (SAR Ops – Hylmpulse – Saxa Vord) rather than on the authority level. MOD will only have concern over priorities is

there is an impact to the route network that means Military Danger Areas cannot be booked. However, I suggest that contingency procedures are devised for the possibility of non-compliant aircraft flying through the TDA when active e.g. foreign aircraft not under control of UK ATC agencies; or even other aircraft flying close so that they can watch the launch.

NATS has requested a LoA between them and the Range Operator (Saxa Vord Spaceport). I believe that the prioritization of activation of the TDA can be discussed in this document.

As your proposal deals with rocket launching, as well as liaison through the Defence Space Agency, from an operational perspective, engagement with the UK Space Operations Centre (UK SpOC) will need to be undertaken for the following reasons. The UK SpOC is responsible for monitoring and reporting of all UK space launch activities. The UK SpOC require information on numerous elements of a launch and subsequent activity, including but not limited to; notification of upcoming launches, launch area, drop and abort zones, mission profiles, tracking data, frequencies and understanding go/no go criteria. This information will be used to enable the UK SpOC to Detect, Track, Characterise and Report (DTCR) UK space launches.

HyImpulse is providing the documentation regarding the launch activity (mission profile, trajectory, safety case) as part of the application process to a flight license under the A.N.O. regulations. Is it possible that the communication with the UK SpOC is managed directly by the CAA? I will ask our PoC at the CAA for further clarification on this point. If the CAA is willing to act as a proxy to pass on the requested information to the UK SpOC, I can't see a problem with that, but if not then please ensure the information is passed directly to the UK SpOC.

Please feel free to engage with me directly as the DAATM POC for this ACP.

Best regards,

[REDACTED]

[REDACTED] | SO2 Airspace Plans | Defence Airspace and Air Traffic Management | Aviation House | 1E
Beehive Ringroad - Crawley - West Sussex - RH6 0YR | [REDACTED]
[REDACTED]

From: [REDACTED]
Sent: 18 February 2022 11:48
Cc: [REDACTED]
Subject: [Follow up #2 - TDA Change] - Temporary airspace change in the UK - Shetland Islands

Dear all,

HyImpulse contacted your organization at the beginning of January 2022 to inform you about the establishment of a Temporary Danger Area in the Shetlands. We are contacting you today to inform you about a change in our TDA. Please see the attached file **TDA ACP-2021-058 - Modifications.pdf** for further details about the new geometry.

What has changed?

There are two minor changes in the shape of the TDA:

- The extension of the northern boundary of +10km
- The modification of the north-east boundary

Both changes are justified in our flight safety analysis, currently reviewed by the Civil Aviation Authority in the UK. Moreover, we updated the activation time to be

- August – October 2022 (previously July – September 2022)

to accommodate the needs of the Saxa Vord Spaceport. We are in contact with EUROCONTROL to evaluate the impact on the air traffic between Aug-Oct. We are basing our assessment on a conservative case (activation 3 days per week using a launch window of 4-6 hours only).

What do you need to do?

If you've already provided us with feedback and our change to the TDA is still not impacting your business, you can acknowledge this change, but you don't need to provide us new feedback.

If you haven't provided feedback yet, please use the document **Targeted Engagement Response Form.pdf** for your assessment. Please provide your Engagement Response by replying to this email not later than **March 18th 2022, 11:59 pm CET**.

If you already got in touch with the Saxa Vord spaceport for a similar request, please let us know, so that we can align with them accordingly.

Do not hesitate to contact us in case you require further information from our side.

In behalf of HyImpulse,


Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: 

Web: www.hyimpulse.de

*HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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[REDACTED]

From: [REDACTED]
Sent: Freitag, 25. März 2022 15:20
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: NATS Formal Response to ACP-2021-058 Temporary airspace change in the UK - Shetland Islands

Follow Up Flag: Follow up
Flag Status: Flagged

Hi [REDACTED]

I know there are some agreements but I don't know the precise details – I will raise this internally.

The points raised certainly could be candidates for the discussions leading to the LoA. Again, I will raise internally. I do know there are a number of military exercises planned for the North of Scotland and the Scottish Islands this summer/autumn and there could be some interaction if they are not adequately coordinated.

Kind Regards

[REDACTED]

NATS Public

From: [REDACTED]
Sent: 25 March 2022 13:49
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: NATS Formal Response to ACP-2021-058 Temporary airspace change in the UK - Shetland Islands

Hi [REDACTED]

I am getting back to you because we received feedback from another stakeholder which might require coordination with NATS. I was hoping to get further information from NATS about the following topic.

During the engagement process we contacted the Defence Airspace and Air Traffic Management (DAATM). Although our proposed TDA does not create particular concerns for the MOD operations within the UK FIR, they raised this point

- HyImpulse is aware that the MOD and NATS hold an agreement as to which Danger Areas are permitted to be activated concurrently, to minimise the impact on the route network. MOD will only have concern over priorities if there is an impact to the route network that means Military Danger Areas cannot be booked. The suggestion of MOD is that contingency procedures are devised for the possibility of non-compliant aircraft flying through the TDA when active e.g. foreign aircraft not under control of UK ATC agencies; or even other aircraft flying close so that they can watch the launch.

Has NATS (or the organization which should provide response) already drafted/approved operational responses for such emergencies? What would be the communication chain with the spaceport in such an event? Do you think that this point could be discussed by NATS with the spaceport when drafting the LoA and the priorities for the TDA?

I have to admit that we do not know where to start to tackle this point. Any suggestion from NATS will be well appreciated.

Have a great weekend!

Best regards,


Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: 
Phone: 
Web: www.hyimpulse.de

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Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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From: 
Sent: Freitag, 18. März 2022 17:26
To: 
Cc: 
Subject: RE: NATS Formal Response to ACP-2021-058 Temporary airspace change in the UK - Shetland Islands

Many Thanks 

On 8, yes I'll be the initial point of contact.

Kind Regards



NATS Public

From: 
Sent: 18 March 2022 13:34
To: 
Cc: 
Subject: RE: NATS Formal Response to ACP-2021-058 Temporary airspace change in the UK - Shetland Islands

Mimecast Attachment Protection has deemed this file to be safe, but always exercise caution when opening files.

Dear 

Thank you for summarizing the feedback of NATS. I've inserted the response in our database.

We also have some updated regarding a couple of points:

5. Isavia provided us with a traffic analysis last week. We can forward you the current response from Isavia (attached). They suggest launching within 22pm and 8am, avoiding August 2022. When it comes to the suitable date of the week, here is the outcome based on the traffic from 2019:

	B	C	J
1	Year and Month	Weekday	Percentage of Flights in HyImpulse_TDA_New
2	2019-08	Monday	19,52%
3	2019-08	Tuesday	14,81%
4	2019-08	Wednesday	17,43%
5	2019-08	Thursday	15,18%
6	2019-08	Friday	17,04%
7	2019-08	Saturday	16,04%
8	2019-08	Sunday	19,11%
9			
10	2019-09	Monday	16,35%
11	2019-09	Tuesday	16,72%
12	2019-09	Wednesday	15,19%
13	2019-09	Thursday	15,83%
14	2019-09	Friday	16,02%
15	2019-09	Saturday	17,10%
16	2019-09	Sunday	16,70%
17			
18	2019-10	Monday	13,54%
19	2019-10	Tuesday	14,72%
20	2019-10	Wednesday	15,53%
21	2019-10	Thursday	17,00%
22	2019-10	Friday	14,14%
23	2019-10	Saturday	15,19%
24	2019-10	Sunday	15,28%

However, we were waiting to integrate their data with those of Eurocontrol before assessing the suitable launch window.

6. We are considering to implement the modularity once the air traffic assessment is completed (so that we don't need to change the shape of the outer TDA anymore). In addition to the higher flight levels, the Saxa Vord spaceport also assessed the traffic deriving from the activities of oil&gas and SAR ops occurring below 7,000 ft. We will integrate the final information into the stakeholder engagement report, to be uploaded on the CAA website by April 15th.

8. I will forward this information to the Range Manager at Saxa Vord. Are you going to be the point of contact for the LoA?

9. We got a notice from the MOD, that the concurrent activation of the DA is agreed by NATS and the MOD. Is it possible to integrate the information related to the priority activation of the TDA into the LoA with the spaceport?

Thank you again for your time. I'm looking forward to our further coordination on this topic.

Best regards,


Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: 
Phone: 
Web: www.hyimpulse.de

HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer

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From: [REDACTED]
Sent: Freitag, 18. März 2022 11:40
To: [REDACTED]
Cc: [REDACTED]
Subject: NATS Formal Response to ACP-2021-058 Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Many thanks once again for the opportunity to comment on ACP-2021-058 and for the constructive dialogue we have had so far. Please find below our formal response in accordance with your revised deadline of 18/03/22:

1. We note the updated documents and other information you have provided, including the revised dimensions of the TDA which have been extended to cover both nominal and non-nominal situations.
2. We note that HyImpulse are not seeking any particular services from NATS in the context of this ACP.
3. We note that you are in discussion with the other relevant operational stakeholders, both in the UK and elsewhere.
4. Further to our discussions, NATS does require there to be a 5 Nautical Mile FBZ around the TDA in Scottish Free Route Airspace but it's up to the Regulators/ANSPs in the other affected States to say if they require an FBZ in their airspace.
5. The impact on NATS will be dependent on the amount of traffic diverting south to avoid the TDA. We are still awaiting information from you on Isavia's latest estimates. (As we have discussed, both the day of the week and time of day may significantly influence the number of flights affected, as well as the length of the activation.)
6. We have discussed with you the possibility of whether the TDA could be made modular, with a relatively small area around the launch site which would be activated prior to fuelling, and the larger area only being activated to cover the launch/recovery phase. NATS believes this could considerably reduce the number of flights adversely affected by the launch and therefore would support the modular approach unless there are compelling reasons to do otherwise.
7. Given points 5 and 6, we are currently still unable to comment on the operational impact of the TDA on both NATS Operations and our customers. We look forward to receiving the additional information from HyImpulse when it is available.
8. The LoA between the Range Operator (Shetland Space Centre) and NATS must be in place before a Launch Licence can be granted and any launch take place. As yet we are not aware that discussions on this have started.
9. Finally, please be aware that there are a number of proposed activations of large Danger Areas around Northern Scotland and the Islands during late summer / early autumn 2022. Some of these may have overlapping airspace requirements or cause cumulative affects which may need to be taken into account.

We look forward to our further discussions in due course.

Kind Regards

[REDACTED]

NATS

[REDACTED]

Manager, ATM Portfolio - Design & Benefits

M: [REDACTED]

E: [REDACTED]

www.nats.co.uk



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[REDACTED]

From: [REDACTED]
Sent: Donnerstag, 31. März 2022 15:40
To: [REDACTED]
[REDACTED]
Subject: 22/03459-13 - Reference 22/03459 - HyImpulse - Flight Plan Buffer Zones

Follow Up Flag: Follow up
Flag Status: Flagged

Good afternoon,

CAA Norway has coordinated your request with the service provider, Avinor ANS, affected by establishment of FBZs in Polaris FIR.

We have no objections to the proposal to extend the FBZ to include the complete DA, especially the part that will enter into Polaris FIR.

As long as no flight plans are accepted through the Danger Area, then Avinor ANS have no operational issues with the activity.

They expect that activity will be coordinated by Icelandic service providers.

Best regards,

[REDACTED]
Senior Inspector ATM
[REDACTED]
[REDACTED]

Civil Aviation Authority Norway

Fra: [REDACTED]
Sendt: tirsdag 22. mars 2022 08:18
Til: [REDACTED]
Kopi: [REDACTED]
Emne: RE: Reference 22/03459

Dear [REDACTED]

We are in still in the process of updating our DA, based on the input we got from the stakeholders.

For this purpose, I've got a question for the ATS in Norway. The [NATS](#) in the UK requires us to provide a Flight-Plan Buffer Zone (FBZ) together with the proposed TDA because we are in a free route airspace. According to the CAA UK, we required to describe the FBZ in the Scottish FIR only. The coordinates of the FBZ will not be published by NOTAM, but the FBZ is a 'tool' used to systemise the TDA to prevent commercial aviation from being able to flight plan a route that would erode safety margins to the boundary of the actual TDA. So the FBZ is not an area that would be displayed on charts.

I'm not aware that Norway requires a FBZ associated to the Danger Area in the FIR Polaris. Would you confirm on this?

Because the Scottish FIR is only covering a little portion of the DA, we are thinking of using the simplest approach and extending the FBZ to include the complete DA. Here is a preliminary draft (TDA in red, FBZ in yellow with a margin of 5 nm on the TDA boundaries). So the eastward boundary of the FBZ only will be included into the FIR Polaris.



Would you let us know the position of the Norwegian CAA on the use of the FBZ?

Best regards,

[Redacted]
Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [Redacted]

Web: www.hyimpulse.de

*HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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From: [Redacted]
Sent: Montag, 7. Februar 2022 14:46
To: [Redacted]

Cc: [REDACTED]

Subject: SV: Reference 22/03459

Dear [REDACTED],

I am sorry that I haven't been able to reply until now.

Thank you for the updated information.

I will coordinate will this with maritime and petroleum safety authorities in Norway.

We are of course interested in any news regarding the Norwegian portion of the TDA, as soon as you have anything to share with us.

And feel free to provide the CAA UK with the information required by us on this matter.

I'd be happy to discuss with them directly to learn and to reach a common understanding on how we can cooperate in these matters.

Will you postpone the deadline for the response form, pending the updated information on TDA or should we be prepared to make our comments according to the original date?

Best regards,

[REDACTED]
Senior Inspector ATM
[REDACTED]
[REDACTED]

Civil Aviation Authority Norway

Fra: [REDACTED]

Sendt: tirsdag 1. februar 2022 16:40

Til: [REDACTED]

Kopi: [REDACTED]

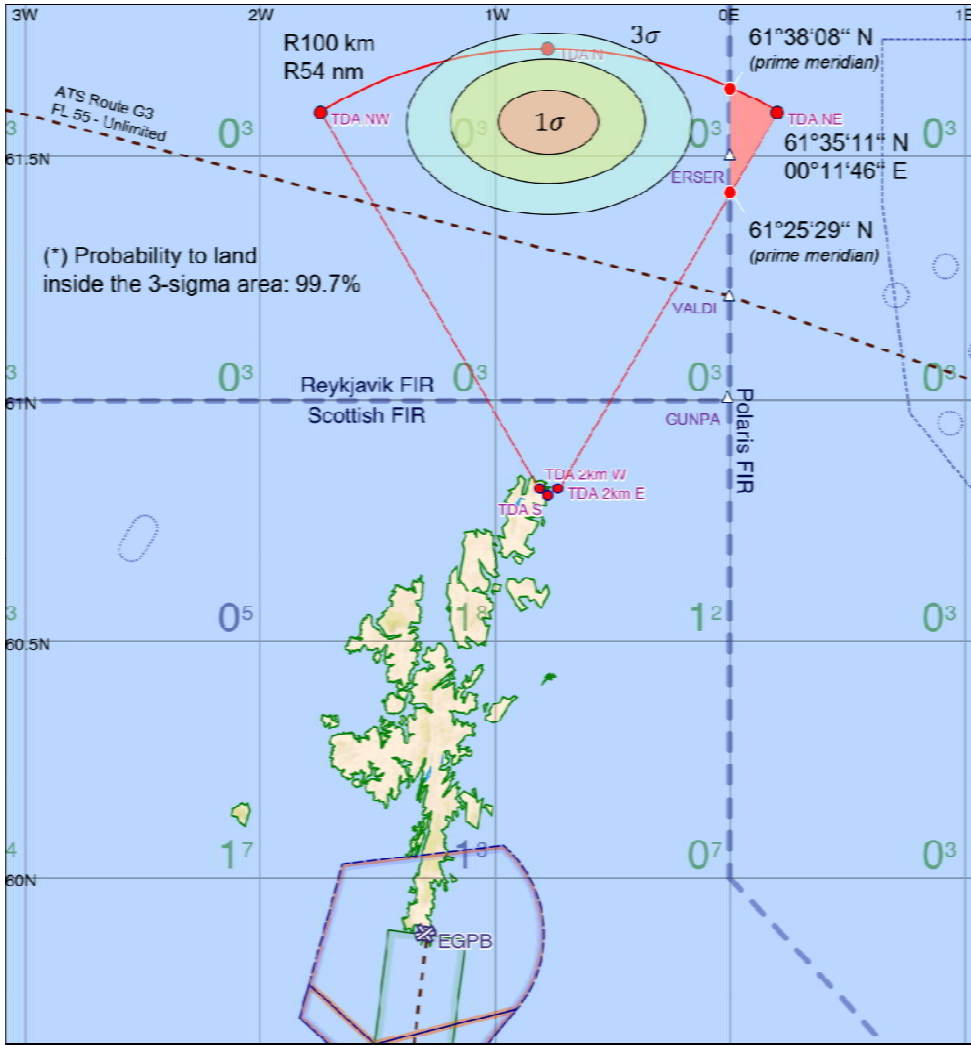
Emne: RE: Reference 22/03459

Dear [REDACTED],

First of all, thank you so much for taking care of this matter on your side. Apologies for our late response, but we've been discussing the topic internally since yesterday morning to align our views.

You are right, the coordinates provided in the previous pdf file were not correct, it was a mistake from our side when editing the original table. We've updated the PDF file with the correct coordinates (attached, as well as the original data in kmz format). Apologies for this inconvenience and thank you for letting us know.

We understand the procedures required by the CAA Norway to cover the TDA area entering the Norwegian FIR Polaris, and we are willing to initiate them if necessary. However, due to our launch schedule and the concern of an increased complexity of the process, we are considering proceeding another way for our first launch. Here below you can see the original TDA, the upper right corner interested by the Norwegian FIR. Apart from requesting this TDA, we've also initiated a process with the CAA in the UK to obtain the flight license for our launch. Based on our flight safety analysis currently under review by the CAA, you can see that the suggested TDA is more conservative than the 3-sigma distribution of impact points deriving from the analysis (the largest blue ellipses in the figure):



This means that the probability of impact outside the 3-sigma zone is less than 0.3%. When considering only the upper corner interested by the Norwegian FIR, the probability is extremely lower than that (magnitude 10⁻⁷ to 10⁻⁸). We are quantifying this number with further analysis, and we will let you know a more precise number in the incoming weeks.

Based on the reasoning above, we are currently in contact with the CAA UK to modify our original TDA to exclude the airspace covered by Norway, based on our flight safety analysis. However, we believe that the engagement with Norway is a topic of interest also for the Saxa Vord spaceport in the UK where we are planning to launch, as they have to be licensed by the CAA UK.

To facilitate the communications between us, the CAA UK, the Saxa Vord spaceport and the CAA Norway, am I allowed to provide the CAA UK with the information required by the CAA Norway on this matter?

Best regards,

Space Licensing and System Engineer

Hylmpulse Technologies GmbH
 Wilhelm-Maybach-Straße 5
 74196 Neuenstadt am Kocher
 Germany

E-Mail: [redacted]
 Phone: [redacted]
 Web: www.hyimpulse.de

*Hylmpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
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From: [REDACTED]

Sent: Montag, 31. Januar 2022 12:06

To: [REDACTED]

Cc: [REDACTED]

Subject: Reference 22/03459

Hi [REDACTED]

Thank you for your quick and detailed reply. I apologize for the discrepancies in the coordinates. We will check and my colleagues will send you a corrected version as well as all other needed information.

Mit freundlichen Grüßen/ Best regards

[REDACTED]
Test Bench and Development Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

Phone: [REDACTED]
E-Mail: [REDACTED]
Web: www.hyimpulse.de

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From: [REDACTED]

Sent: Montag, 31. Januar 2022 11:42

To: [REDACTED]

Cc: [REDACTED]

Subject: SV: Temporary danger zone in Norwegian airspace

I forgot to request one more thing for our dialogue.

Can you please send all email to [REDACTED] with me as CC and the reference 22/03459 mentioned in the email subject?

This way we can assure a correct and timely response on our side.

Thank you!

Best regards,

██████████
Senior Inspector ATM
████████████████████
██████████

Civil Aviation Authority Norway

Fra: ██████████
Sendt: mandag 31. januar 2022 11:30
Til: ████████████████████
Kopi: ████████████████████
Emne: Temporary danger zone in Norwegian airspace

Hi ██████████

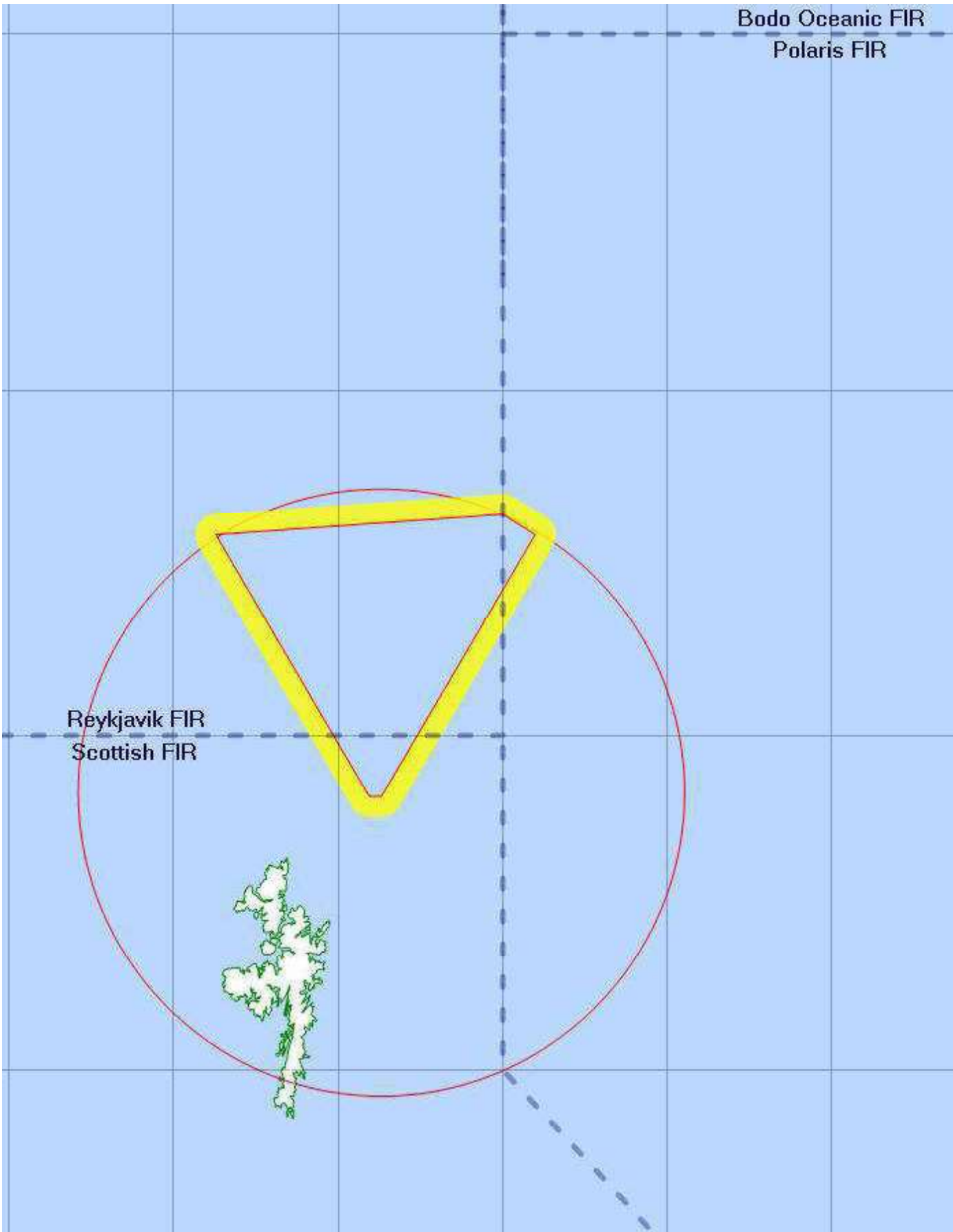
Thank you for reaching out to us!

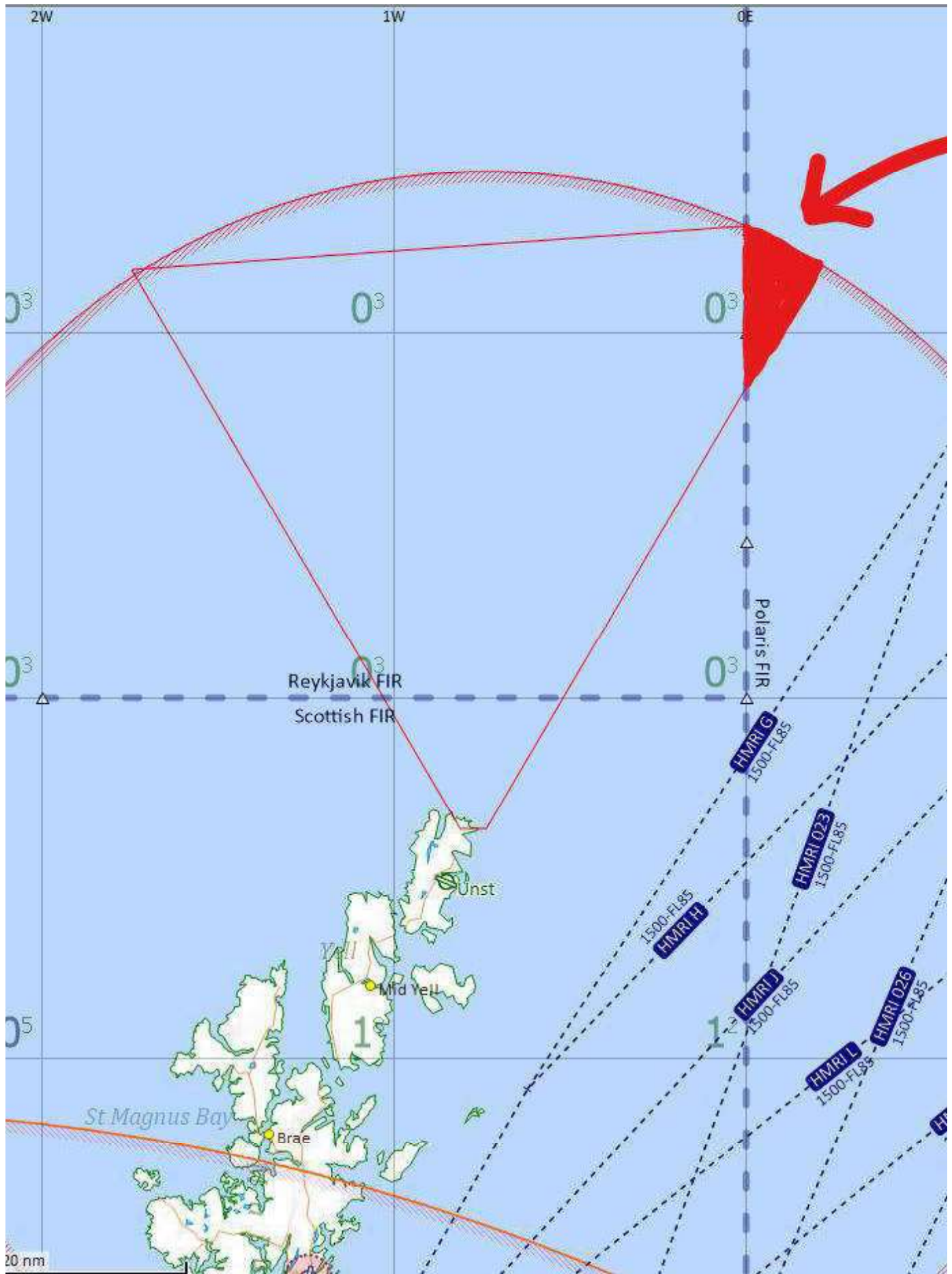
We have received the documents and we had a meeting gathering a group of Norwegian authorities within maritime, industry, fisheries, petroleum safety and airspace domains a couple of days ago. In this meeting it was decided that I will be the contact between Norwegian authorities and HyImpulse leading up to the consultation deadline on February 28th.

During the review of the documentation we have received we have some questions on the data HyImpulse have provided.

We need to understand the full dimensions of the area which will be affected by the launch from the Shetland Islands in order to assess the impact on Norwegian interests. You have provided a pair of centre points and a radius of 100 km from the launch site. Since both maritime and aviation actors operate with nautical distance references, we have converted this to approximately 54 nautical miles. We suspect that there are some discrepancies in the sets of coordinates in the document «TDA ACP-2021-058.pdf» that was attached in the original email we received from you. In the column «Longitude» - secondary column «D» we suspect that you intend to define longitudes for the different points depicted in the illustrations/maps. However, we register that the column includes numbers increased by one value for each new line. The result is a mismatch between the data sets and the illustrations/maps.

If we assume that the data in the table is incorrect and that the illustrations/maps are correct, then the following illustrations may indicate the airspace where Norway by ICAO/UN has been given the privilege and duty to provide air traffic services that is impacted by the launch:





We understand that UK authorities require an application for a temporary change in the airspace design by establishing one or more temporary danger area(s) for the activity.

For the part of affected airspace where Norway is providing Air Traffic Services (ATS), we also need to establish a danger area in order to provide flight safety.

The airspace in questions is international airspace (High Seas), so we have no authority to demand an application from Hylmpulse. But we would obviously greatly appreciate it if you send us an application for such an area to be established according to Norwegian regulations. We are committed to provide guidance to you in the process leading up to such an application, and most of the information required in an application is the same that we require to fully assess the consequences for Norwegian interests anyway.

In order to be able to provide a complete response from Norwegian authorities we require detailed and correct sets of coordinates defining all border points of the affected airspace east of 0 longitude, including the 0 longitude crossing points.

These coordinates should be provided with reference to WGS-84, UTM or both.

Based on this the Petroleum Safety Authority will assess the risk the launch will represent in Norwegian Sectors. We suspect that the affected area is close to the area where Norway is responsible for issuing warnings to ship traffic, so we will keep them informed regarding any changes in the area.

We also require a timeline for the launch, including the time periods where the dangerous conditions exists within the area.

We believe that it would be in the interest of all actors involved in this activity that airspace and maritime users are not affected more that necessary. To make this possible we request that Hylmpulse establish coordination procedures with affected air navigation service providers providing ATS in the danger areas to be used during the launch. The functions providing information and guidance to ships and petroleum operator might also require timely coordination. We will provide contact information to all parties involved in Norway.

So to conclude we request the following inputs from Hylmpulse in order to be able to produce feedback in the Targeted Engagement with stakeholder - Response Form:

- A confirmation that the data in the document «TDA ACP-2021-058.pdf» is correct
- Detailed and correct sets of coordinates defining all border points of the affected airspace east of 0 longitude, including the 0 longitude crossing points.
 - These coordinates should be provided with reference to WGS-84, UTM or both.
- A timeline for the launch, including the time periods where the dangerous conditions exists within the area - as detailed as possible taking into account all uncertainties currently present.
- We request that this information is updated as the planning activities progress
- Confirmation on the willingness to establish coordination procedures with relevant Norwegian actors during the launch

So I hope this email finds you well, and I look forward to our cooperation.

If you have any questions, please do not hesitate to contact me.

Best regards,

██████████
Senior Inspector ATM
████████████████████
██████████

Civil Aviation Authority Norway

Fra: [REDACTED]
Sendt: fredag 28. januar 2022 12:03
Til: [REDACTED]
Emne: Temporary danger zone in Norwegian airspace

H: [REDACTED]

as you might have seen in my mail to [REDACTED], HyImpulse plans to launch from Shetland this year and the temporary danger zone for this launch also involves a small ACC region in Norway. You can find more information about HyImpulse's launch activities from Shetland under this [link](#).

My colleague [REDACTED] is currently working on the licensing process for this launch, and that requires i.a. that we engage with potentially affected stakeholders in the area. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**). Our proposed TDA is mainly included in the Scotland ACC, but it is crossing over the **Norway ACC** eastbound (**ENSV 13**), and the Iceland ACC westbound (BIRD E).

I hope you can let us know what steps we need to take in Norway to get official approval/registration for these restrictions on Norwegian airspace resulting from the proposed launch activities.

If there is a fixed process for this case, it would be perfect if you could share it as feedback in the attached document **Targeted Engagement Response Form.pdf**.

God helg!

Best regards

[REDACTED]
Test Bench and Development Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

Phone: + [REDACTED]
[REDACTED]
Web: www.hyimpulse.de

*HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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[REDACTED]

From: [REDACTED]
Sent: Mittwoch, 26. Januar 2022 09:54
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Thank you for including the Offshore Petroleum Regulator for Environment & Decommissioning (OPRED) in your stakeholder engagement. We would suggest also engaging with the oil and gas industry body Oil and Gas UK <https://oguk.org.uk/> if you haven't done so already.

OPRED will publish an environmental alert through our website to advise oil and gas operators of the requested TDA and instruct them to contact you if they have concerns.

Best wishes,

[REDACTED]

From: [REDACTED]
Sent: 24 January 2022 09:06
Cc: [REDACTED]
Subject: [Follow up #1] - Temporary airspace change in the UK - Shetland Islands

Dear all,

HyImpulse contacted your organization at the beginning of January 2022 to inform you about the establishment of a Temporary Danger Area in the Shetlands (see original email below). We are getting back to you today because we haven't received your feedback yet.

You can find more information about HyImpulse's aim and why we requested an airspace change using this [link](#). A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**). The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than **February 28th 2022, 11:59 pm CET**.

If you were already contacted by the [SaxaVord spaceport](#) for a similar request, please let us know, so that we can align with them accordingly.

Do not hesitate to contact us in case you require further information from our side.

In behalf of HyImpulse,

[REDACTED]
Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail [REDACTED]
Phone [REDACTED]

Web: www.hyimpulse.de

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From: [REDACTED]
Bcc:
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

Dear all,

HyImpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about HyImpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

HyImpulse wishes you a happy New Year and a great start in 2022!

In behalf of HyImpulse,

[REDACTED]
Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

[REDACTED]
Web: www.hyimpulse.de

*HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
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[REDACTED]

From: [REDACTED]
Sent: Donnerstag, 13. Januar 2022 13:05
To: [REDACTED]
Subject: RE: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Thank you for your email to the Oil and Gas Authority of 7 January 2022.

From the perspective of the offshore oil and gas sector, it should be ensured that there is no disruption from launches to offshore oil and gas activity or facilities in the area. An interactive map of offshore oil and gas infrastructure is available [here](#) and may be of use.

These are however mainly matters for the Health and Safety Executive (HSE) and the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) and we would advise that you continue to keep them abreast of your plans.

We would also advise, if you have not already done so, that you contact the UK oil industry representative body, Oil & Gas UK, to seek their views.

Kind regards

[REDACTED]

From: [REDACTED]
Sent: 07 January 2022 10:57
To: [REDACTED]
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

To the kind attention of the Oil & Gas Authority:

Hylmpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,

Space Licensing and System Engineer

HyImpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: [REDACTED]
Web: www.hyimpulse.de

*HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
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The Oil and Gas Authority is a limited company registered in England and Wales. Registered number 09666504. VAT registered number 249 433 979. Registered office: 21 Bloomsbury Street, London, United Kingdom, WC1B 3HF.

[REDACTED]

From: [REDACTED]
Sent: Montag, 24. Januar 2022 12:01
To: [REDACTED]
Subject: RE: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

Thank you for consulting us over this proposal. The airspace change and the launch itself are unlikely to have a significant effect on matters within NatureScot's remit.

Regards

[REDACTED]

[REDACTED] | **Operations Officer | Northern Isles and North Highland**

NatureScot | Stewart Building, Alexandra Wharf, Lerwick ZE1 0LL | [REDACTED]

[REDACTED] | *Scotland's Nature Agency | Buidheann Nàdair na h-Alba*

From: [REDACTED]
Sent: 07 January 2022 12:19
To: [REDACTED]
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

Dear [REDACTED]

HyImpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about HyImpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

The document **Targeted Engagement Response Form.pdf** will enable you to provide us with your feedback. Please provide your Engagement Response by replying to this email not later than February 28th 2022, 11:59 pm CET.

We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

HyImpulse wishes you a happy New Year and a great start in 2022!

In behalf of HyImpulse,

[REDACTED]
Space Licensing and System Engineer

HyImpulse Technologies GmbH

Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

Web: www.hyimpulse.de

*HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer
Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043*

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NatureScot is the operating name of Scottish Natural Heritage.

[REDACTED]

From: [REDACTED]
Sent: Mittwoch, 19. Januar 2022 12:55
To: [REDACTED]
Cc: [REDACTED]
Subject: Temporary airspace change in the UK - Shetland Islands

Follow Up Flag: Follow up
Flag Status: Flagged

Hi [REDACTED],

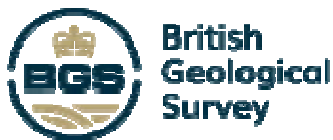
After consulting with our scientists, I can confirm that this will not cause BGS any issues. They are guessing it's affect could be similar to a sonic boom, which are generally visible on our sensors but wouldn't be mistaken for an earthquake.

Regards

[REDACTED]
Head of Estates & Facilities BGS (North)

[REDACTED]
[REDACTED]
[REDACTED]
w www.bgs.ac.uk
w www.lyellcentre.ac.uk

British Geological Survey | The Lyell Centre | Research Avenue South | Edinburgh EH14 4AP | UK



Dear [REDACTED]

HyImpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about HyImpulse's aim and why we requested an airspace change using this [link](#).

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We thank you in advance for your precious feedback. Please do not hesitate to contact us in case you require further information from our side.

Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,

██████████
Space Licensing and System Engineer

Hylmpulse Technologies GmbH
Wilhelm-Maybach-Straße 5
74196 Neuenstadt am Kocher
Germany

E-Mail: ██████████
Web: www.hyimpulse.de

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[REDACTED]

From: [REDACTED]
Sent: Freitag, 7. Januar 2022 13:47
To: [REDACTED]
Subject: Re: Temporary airspace change in the UK - Shetland Islands

Hi [REDACTED]

This airspace change would not affect us. We run a charity shop and a recycling/skip disposal service.

[REDACTED]
Unst Partnership Ltd.

----- Original Message -----

From: [REDACTED]
To: [REDACTED]
Sent: Friday, 7 Jan, 2022 At 12:29
Subject: Temporary airspace change in the UK - Shetland Islands

To the kind attention of the Unst Partnership Group:

Hylmpulse is applying for a temporary airspace change in the UK to establish a Temporary Danger Area during notified periods to enable the safe testing and demonstration of its sounding rocket, SR75. You can find more information about Hylmpulse's aim and why we requested an airspace change using this [link](#).

The process requires us to engage with potential stakeholders in the area, who might be affected by this proposal. This is why we are contacting you today. We would appreciate your collaboration in this process by carefully evaluating whether this airspace change would affect your business or not, and if yes, to which extent your company might be affected. A detailed description of the requested Temporary Danger Area is attached to this email (**TDA ACP-2021-058.pdf**).

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Hylmpulse wishes you a happy New Year and a great start in 2022!

In behalf of Hylmpulse,

[REDACTED]

Space Licensing and System Engineer

Hylmpulse Technologies GmbH

Wilhelm-Maybach-Straße 5

74196 Neuenstadt am Kocher

Germany

E-Mail: [REDACTED]

Web: www.hyimpulse.de

HyImpulse Technologies GmbH, registered in Hardthausen, is represented by Dr. Mario Kobald and Dr. Christian Schmierer

Commercial register HRB 764976 at Amtsgericht Stuttgart, VAT number according to §27a VAT Act: DE 318131043

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