AVIATION STATE ENGAGEMENT FORUM	
South Australia	**Submission Date: 18/11/2021**

TITLE	**Southern Launch | Rocket Launch Campaign**
SUBMITTED BY	Lloyd Damp – Southern Launch: admin@southernlaunch.space
CONSULTATION SUMMARY	To seek feedback from airspace users on: 1. the potential effect upon your flight operations of a proposed Temporary Restricted Area(s), and 2. any measured effect of the Temporary Restricted Areas should the rocket launch activity proceed.
KEY ISSUES	• One (1) rocket launch between 01 January 2022 to 31 January 2022 at the Koonibba Test Range. • Proposed Temporary Restricted Areas using existing MATS guidelines extending 43nm down-range and 5nm up-range. • Implementation of multiple TRA activity times, managed by Airservices Australia (Airservices), to maintain safe airspace use and minimise the effect of launch operations on other airspace users.
FEEDBACK TO	Eamon Lawson – Southern Launch: eamon.lawson@southernlaunch.space
CLOSE DATE	3 December 2021
ATTACHMENTS	Nil.

OVERVIEW

Southern Launch is an innovative space company developing safe launch arrangements for orbital and suborbital rockets. Individual staff members have over 30 years of experience in handling, assembling, and launching large suborbital rockets and designing orbital and suborbital rocket launch systems.

Southern Launch has sought approval for the establishment of a Temporary Restricted Area (TRA) to ensure airspace safety and minimise the effect upon other airspace users for the planned sub-orbital launch of a rocket between 01 January 2022 and 31 January 2022. The launch will originate from Pad 20 at the Koonibba Test Range, located in Koonibba 40km North-West of Ceduna on the Far West Coast of South Australia. The proposed solution involves comprehensive coordination between CASA OAR, Airservices, and Southern Launch.

Southern Launch proposes using a Pre-Launch TRA that covers the launch site while hazardous operations are being undertaken and then a Launch TRA for the full extent of the proposed rocket flight path. We anticipate the Launch TRA would be activated for up to 60 minutes covering the final 30 minutes of launch preparations and up to 15 minutes for flight time.

Feedback

Southern Launch seeks feedback to:

- understand potential effects of the Pre-Launch and Launch TRAs on your operations; and
- understand post-launch specifics of how the rocket flight affected your operations.

Coordinates

- Launch Pad: -31.885, 133.452
- Nominal Payload Return: -31.44, 133.47

Date and Time of Launch

- Planned For: one launch window between 1 January 2022 and 31 January 2022.

Trajectory

- The nominal trajectory of the launch will take the vehicle on a flight path at approximately 362 degrees from magnetic north.

CURRENT LIMITATIONS

Currently, the Manual for Air Traffic Services (MATS) applies spatial separation methods between rockets and aircraft. As such, a TRA is employed across the extent of airspace affected by a rocket launch.

Worldwide, the FAA 14CFR B417.9 is an industry-standard for spatial separation guidelines between rockets and aircraft and is the guideline Southern Launch is adopting to design any TRA boundaries for the proposed launch.

During pre-launch activities in the lead-up to the launch, a smaller Pre-Launch TRA will be employed to cover the area around Pad 20. Prior to the arming circuits being closed, the Pre-Launch TRA will be augmented with the larger Launch TRA.

The Launch TRA would be activated following the completion of all launcher preparations and after a determination has been made that the launch is ready to proceed.

The Launch TRA would be activated for up to 45 minutes to account for final launch activities, confirmation that the airspace is clear, rocket motor ignition, and the total flight time of the rocket.

On the launch day, the exact launch timing is contingent on many factors including weather, rocket technology preparedness as well as the local preparations and range clearance.

It is for these reasons that backup launch days are planned within a broad launch window to account for any unexpected delays.

To ensure adequate safety separation, the Launch TRA could be enforced up to 30 minutes prior to lift-off.

PROPOSED SOLUTION

Southern Launch is proposing to use TRAs as shown in Figure 1 covering the following:

- **Pre-Launch TRA** (*yellow markers in Figure 1*): extending around the launch site for 5nm as per FAA 14CFR B417.9 once launch-related hazardous operations began; and
- **Launch TRA** (*blue markers in Figure 1*): extending across all the planned launch trajectories as calculated using FAA 14CFR B417.9 once a launch execution verdict is provided.

Launch TRAs would be designed to cover the times when a launch could be safely undertaken.

To maximise awareness for airspace users, Southern Launch will provide Airservices with no less than 12 hours notice on whether a launch would be attempted on a particular day during the launch window.

In addition to the use of TRAs, all aircraft will be provided with notification of the proposed activity by Southern Launch's Area Controller who will monitor the Ceduna CTAF frequency and broadcast blind on the Ceduna CTAF once a TRA is activated.

Once launch activity is concluded for a particular launch day, Southern Launch will notify Airservices. Should all launch activity for the launch window be concluded, Southern Launch will notify Airservices that future TRAs that day would not be required and can be cancelled.

All airspace management will be coordinated through Airservices and Melbourne Air Traffic Control.

REQUESTS

Southern Launch seeks input from current airspace users on the effect the proposed solution could have on existing or planned operations within the airspace within the TRAs.

Assuming a launch is approved by the Civil Aviation Safety Authority – SPORT Branch, Southern Launch seeks quantitative feedback on the effect the TRA had on airspace users to inform potential future rocket launch activities from the Koonibba Test Range.

Feedback should be provided to Eamon Lawson – Southern Launch: eamon.lawson@southernlaunch.space

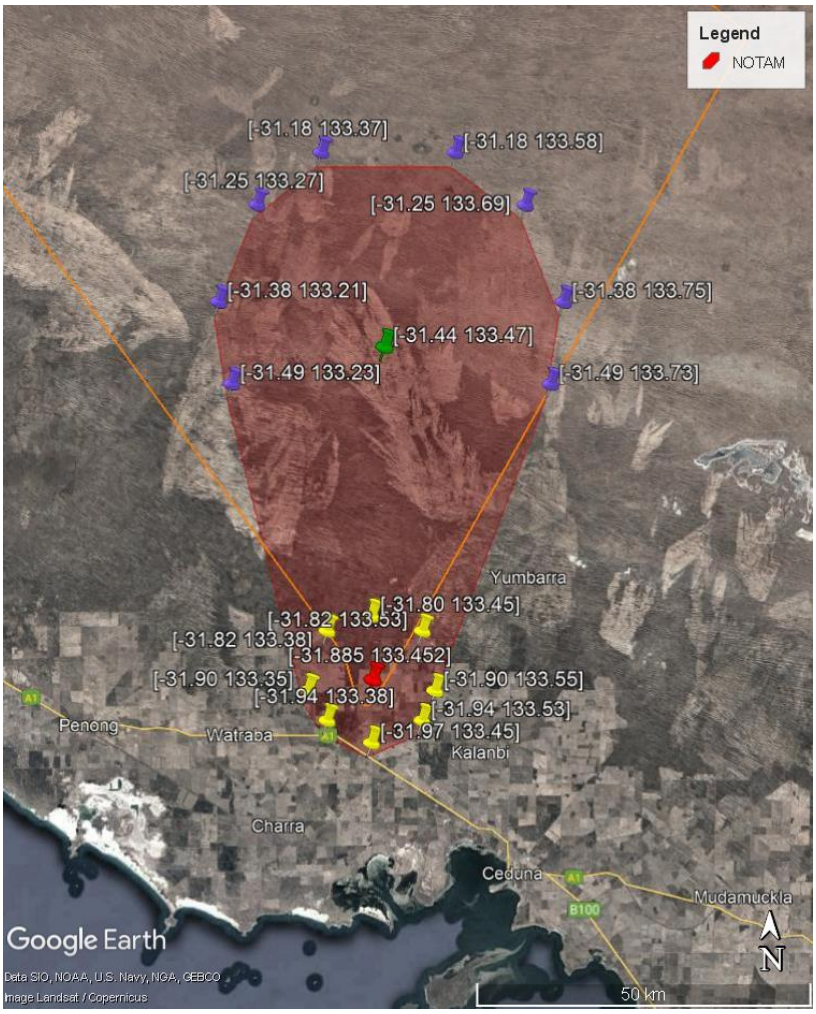

Figure 1: Proposed Rocket TRA