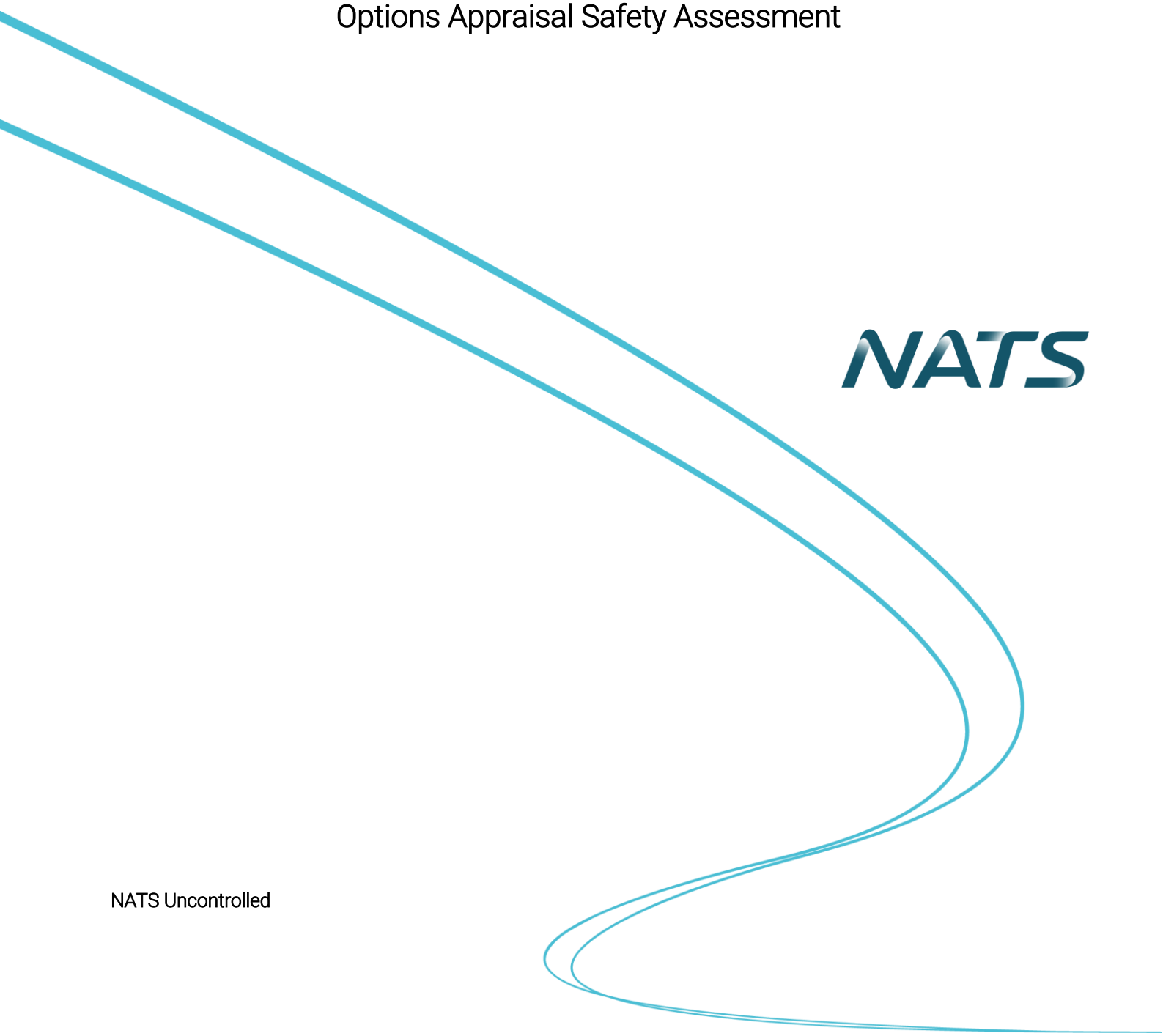
Swanwick Airspace Improvement Programme
Airspace Development 3
LAC S21/Jersey/Brest Interface

SAIP AD3
Gateway documentation:
Stage 2 Develop and Assess

Options Appraisal Safety Assessment



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Issue 1	Mar 2018	First issue released to SARG.

Contents

1. Introduction

1.1 This document forms part of the document set required in accordance with the requirements of the CAP1616 airspace change process.

1.2 This document aims to provide adequate evidence to satisfy
Stage 2 Develop and Assess Gateway, Step 2B Options Appraisal Safety Assessment

1.3 Previous documents have reduced the number of design concepts to one, known as Option 2. This is the preferred option. There is no safety discussion of Option 1 because it is not being progressed.

1.4 Route development is only one aspect of safely increasing ATM capacity. Enhanced arrival management to reduce bunching at key points needs a more systemised route structure to operate to its highest potential.

2. Baseline (do nothing) scenario

2.1 On the southern side of the Flight Information Region (FIR) boundary, the French air navigation service provider (ANSP) known as DSNA operates at higher flight levels, with the Ports of Jersey (PoJ) ANSP operating beneath. Therefore NATS interfaces with two different ANSPs depending on the flight level of traffic. PoJ operates as a unit inside an autonomous area agreed with DSNA.

2.2 Flightplans for traffic between the Solent airports and the Channel Islands use the coordination waypoint (COP) known as 'ORTAC', on the FIR boundary. This applies in both directions - Channel Islands departures use ORTAC northbound, and arrivals use ORTAC southbound. Waypoint LELNA (west of ORTAC) and waypoint ORIST (east of ORTAC) are also used to transfer traffic between ANSPs.

2.3 If no action was taken by controllers, these flights would converge. NATS Swanwick, PoJ and DSNA Ouest controllers manage the flights in a tactical way, using vectoring (heading changes), direct routes to other agreed waypoints, speed control and flight level changes to manually set up traffic flows.

2.4 This is complex and requires a lot of controller interactions - with pilots, and between controllers in three different air traffic control centres.

2.5 A 'controller interaction' is typically a radio transmission with a pilot or a telephone call with a controller colleague, within the same centre or internationally. Each time a controller interacts with either a pilot or controller, the other party must repeat the decision/instruction to ensure accuracy.

2.6 Thus a single controller interaction is comprised of at least two events – the outbound instruction or request, and the returning confirmation check, known as a 'readback'. When controller interactions with pilots gets busy, it is known as a high RT loading. RT loading is one of the major limiting factors to the capacity of an air traffic control sector.

2.7 If traffic in the region is predicted to build to a level where that complexity and the number of interactions (RT loading) could potentially exceed the ability of controllers to perform their tasks (known as a controller overload), air traffic flow management measures are applied until the peak has subsided.

2.8 Traffic in the region is expected to increase, leading to an increased RT loading and an increase in the frequency of application of flow management measures. These cause delays in the region's air traffic route network, affecting sector capacity and can cause ripple-effect complexity elsewhere in the wider network.

2.9 This is the current situation, and is managed safely by the three ANSPs in the region.

3. Safety Assessment – Option 2 concept (preferred)

3.1 Under the option 2 concept, Design Principle 4's (DP4) 'no change to airspace size or type' was assigned a High Priority. The Option 2 concept's combination of flightplanning restrictions and revised route network would reduce (but not eliminate) opposite-direction confliction points in the region.

3.2 A reduction in these conflictions means fewer tactical actions would be required, reducing the number of controller interactions. This would cause a reduction in the complexity of the region's airspace without needing any new, bigger, airspace volumes.

3.3 As per paras 3.1-3.2 above and paras 2.4-2.6 on the previous page, a reduction in complexity for the same amount of air traffic would result in fewer controller interactions and a lower RT loading. As previously noted, RT loading is a limiting factor on the capacity of a sector.

3.4 CAP493, also known as the Manual of Air Traffic Services (MATS) Part 1, allows radar controllers to vector up to 2nm from the edge of controlled airspace (CAS). NATS has been in recent discussion with CAA SARG about amending their 2014 policy from its current 3nm under RNAV1 conditions, to 2nm in line with that minimum vectoring requirement.

3.5 As discussed in Stage 1 (slide 13 of the assessment meeting presentation, and paragraph 4.1 of the meeting minutes), the minimum CAS containment in the southbound flow towards waypoint LELNA would be less than the 3nm described in the previous paragraph's reference to the 2014 policy. The actual distance depends on the route placement within the existing CAS volumes.

3.6 NATS' first priority is safety (and transparently demonstrating its commitment to safety).
NATS will write an appropriate safety case to show that, where the minimum CAS containment for a proposed RNAV1 ATS route is less than the 2014 policy of 3nm, that this is safe.
Note this has been demonstrated in previous airspace projects[1].

4. Conclusion

4.1 There would be a positive impact on safety whilst also increasing the capacity of the sector group, because more traffic could be safely handled with fewer controller interactions, and without changing CAS size or type.

[1] NATS' discussions with SARG will continue, aiming for revised containment policy guidance to 2nm for RNAV1 routes.

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