Free Route Airspace Deployment 2

Gateway Documentation
Stage 4: Submit

Step 4A: Update Design:
Consultation Response Document

Roles

Action	Role	Date
Produced	Airspace Change Specialist Airspace and Future Operations	05/2022
Reviewed Approved	Airspace Implementation Manager (ATC Lead) Airspace and Future Operations	05/2022
Reviewed Approved	Manager Airspace Change Airspace and Future Operations	05/2022
Reviewed Approved	Head of Airspace Development Airspace and Future Operations	05/2022
Reviewed Approved	Head of Corporate and Community Affairs Airspace and Future Operations	05/2022

Publication history

Issue	Month/Year	Change Requests in this issue
1.0	05/2022	Submitted to CAA

References

Ref No	Description	Hyperlinks
1	FRA D2 3D Collate and Review Responses document	Step 3D document
2	EUROCONTROL Network Management Flight Planning Requirements - Guidelines	Link
3	LD1.1 Update Design: Consultation Response Document	CAA portal

Contents

1. Introduction

1.1 NATS is proposing to implement Free Route Airspace (FRA) in the South-West area of the UK Upper Information Region (UIR) (airspace from 24,500ft – 66,000ft). This is Deployment 2 of the UK FRA programme.

1.2 In a separate ACP, NATS also proposes that the underlying airspace (airspace from 7,000ft – 24,500ft) will be changed concurrently as part of the London Airspace Modernisation Programme 2 (Deployment 1; LD1.1) (ACP-2017-70).

1.3 These ACPs are interdependent and cover a common geographic region. Consultation has been conducted concurrently and the airspace changes must be implemented simultaneously given the interdependencies between the two airspace designs.

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

1.5 This document aims to provide adequate evidence to satisfy: Stage 4, Step 4A Update Design, for the FRA D2 deployment.

2. Consultation Responses

2.1 NATS completed a consultation on the proposed airspace changes in the FRA D2 Deployment area. This was focused on how and where FRA is implemented in this area. The consultation closed on 29 November 2021 and received 27 responses.

2.2 A summary of all responses can be found in the Consultation Responses Report (Ref 1).

2.3 As shown in that document, the consultation responses support the proposed changes. A clear preference was made by stakeholders for Option 1, the implementation of FRA with all ATS routes removed. NATS will therefore progress this option as the final design.

2.4 The responses have been reviewed and key themes have been derived. These are described in the 3D Consultation Responses Report. Eight responses have been categorised as having the potential to impact the final design, as presented in Table 1 below.

2.5 As shown in Table 1, these responses have been reviewed, and NATS has considered the merits and practical possibilities of amending the airspace change design to address these.

2.6 There are no proposed changes to the design as a result of the responses received.

Table 1: The following 8 responses have been categorised as may impact on the proposed design:

No.	Response & ID	Summary of comments	Themes of comment	Potential impact on the proposal	Outcome and final NATS response
1	Brest ACC (post engagement)	Brest ACC wishes NATS to introduce the new COPs 'SALCO Sud' and 'SALCO Nord' as part of LD1.1 changes, and not with a delayed implementation date as proposed in the LD1.1 consultation material.	Airspace structures (COPs)	This would introduce the COPs at implementation, revise existing COPs, and provides the opportunity to reduce complexity in this airspace.	The COP introduction/revision will be introduced under LD1.1. Any new COPs introduced as part of LD1.1 will be assigned FRA relevance as appropriate. Included here to transparently show the interdependencies between the FRA D2 and LD1.1 ACPs. See LD1.1 4A document. No change to design.
2	British Airways (online portal) FRA_6	Agrees with dispensation from Buffer Policy – allows a more flexible approach. Recommends engagement with stakeholders when determining size and shape of SUA buffers.	Buffer Policy	Further engagement with stakeholders could impact the final design of SUA buffers.	NATS has engaged extensively with the MoD to provide input into safety analysis to determine the appropriate size and shape of SUA buffers. No change to design.
3	British Airways (online portal) FRA_6	Agrees with lateral boundaries of FRA – this supports the expansion of FRA in the UK, connects with Irish airspace and addresses a key flow from London airports to the NAT. Disappointed it does not connect with FRA D1 (busy corridor to the west of Liverpool overhead Bangor); this may constrain some traffic flows.	Airspace structures (FRA)	This could affect the lateral boundaries of this FRA deployment.	FRA deployments are based on airspace complexity and sector boundaries which has led to them being deployed in this manner. Future ACPs will address this specific area, see https://airspacechange.caa.co.uk/PublicProposalArea?pID=400 for more details on FRA Deployment 3. No change to design.
4	British Airways (online portal) FRA_6	Disagrees with making assumptions based purely on BADA modelling. It only considers average climb gradients. Recommends talking to operators about how different aircraft operate in different operating environments.	FRA connectivity	This could affect the methodology used to assign FRA arrival and departure points.	The methodology used is a combination of 2019 traffic levels and standing agreed levels, not just BADA. Calculations were made using flight plan data and actuals. The design allows flexibility for future review as aircraft performance changes in the future – it is assumed that any future changes can be made to FRA designation through a Level 0 ACP in accordance with CAP1616 guidance in Table A2. No change to design.
5	Irish Aviation Authority (ANSP) (online portal) FRA_20	FRA Arrival/Departure points need greater definition for downstream sectors/centres (ie FRA Entry (E)/Exit (X) Intermediate (I) waypoints).	FRA connectivity	This could affect the designation of FRA significant points within the design.	All FRA significant points will be designated within the final published design. No change to design.

6	Irish Aviation Authority (ANSP) (online portal) FRA_20	Implication of FRA significant waypoints on cross-border FRA and structural limitations. Specifically, flight plannable DCTs to waypoints where previously a DCT has been given off-track to the downstream sectors.	FRA connectivity / RAD restrictions	This could affect the designation of FRA significant points within the design.	NATS will continue to engage with the IAA to ensure that traffic flows will be flight planned and managed in the RAD in a mutually agreed manner. No change to design.
7	Irish Aviation Authority (ANSP) (online portal) FRA_20	Concerns over the use of RAD to manage the FRA. Proposes a key deliverable should be the definition of optimal traffic capacity, linked with downstream sectors.	RAD restrictions	This could affect the designation of FRA significant points within the design.	NATS will continue to engage with the IAA to develop the RAD restrictions required to optimise both complexity and capacity. No change to design.
8	DAATM (uploaded document) LD1_20	Significant engagement has been undertaken between MoD and NATS on buffer policy for Danger Areas and Restricted Areas. The use of internal lateral and vertical buffers within DAs is not supported by the MoD, however the MoD is open to other solutions and will work with NATS to achieve them.	Buffer Policy	This will inform the NATS safety management process to determine tolerably safe flight planning buffers for each SUA within the region.	In the consultation we asked for views on alternative options should the CAA be minded not to agree with our proposal. This can only be determined on completion of Stage 5 of the ACP process, and therefore cannot influence the final design submitted at Stage 4. No change to design.

3. Technical/Administrative Amendments

3.1 At Step 3D we stated that we will also consider additional refinement and technical amendments which have come to light as part of NATS' policy of continually seeking airspace improvement.

3.2 Now that the safety assessments have been completed, we are able to determine the size, shape and application of Flight plan Buffer Zones (FBZ). The effective management of FBZs will require some additional administrative changes to the remarks for specific SUA in AIP ENR 5.1. Additionally, we have been able to determine the most effective use of No Planning Zones (NPZ). These changes have been included in this document to ensure transparency.

3.3 These do not result in significant design changes and are changes to nomenclature only. These are described in Section 4.

4. Design Change Log

No Planning Zones

4.1 During consultation we described that we may need to utilise NPZs as part of the airspace design. We stated that should they be required, the proposed deployment of FRA will comply with guidelines for NPZs as set out within Para 4.5.5 of the EUROCONTROL Network Management Flight Planning Requirements - Guidelines issued Dec 2021 (Ref 2).

4.2 Following extensive engagement, and with agreement of EUROCONTROL Network Manager (NM), NATS now proposes that NPZs will be published in the Route Availability Document (RAD) Appendix 7. The rationale for this as follows:

- The requirement to publish NPZ is only defined within the ERNIP (European Route Network Improvement Plan) Part 1. These guidelines stipulate that FRA NPZs would be published in AIP "ENR 2.2 Other Airspace Structures". NATS, in agreement with EUROCONTROL NM, is proposing an alternative publication option.
- FRA D2 proposes to use NPZs to reduce the number of RAD restrictions required to manage complex flows of traffic within the FRA volume. Using volumetric restrictions is more efficient than extensive and complex RAD restrictions.
- Two existing NPZs were published for FRA D1 in ENR 2.2. These were related to safety rather than flow management, designed to protect oceanic interfaces where procedural control is used so the need is different from that for FRA D2. The use of NPZs for flow management is a new and innovative concept that has been developed through engagement with the EUROCONTROL Network Manager. Publishing NPZs in the RAD will enable NATS to make dynamic changes based on operational need.
- NPZs may need to be updated post implementation to address unforeseen flight planning issues in the same way that we make adjustments to the RAD for all other airspace changes.
- Including NPZ in the AIP would introduce administrative demands to both the sponsor and the regulator to make any such adjustments as and when they occur, to fulfil the requirements of CAP1616[1]. This would incur extra cost and potentially delay changes that may be needed to manage the airspace effectively.
- Defining NPZs in the RAD enables us to easily deliver benefits when future concepts such as NPZ management and dynamic RAD are realised.

Stakeholder Engagement

4.3 We have liaised with NM (the custodian of ERNIP Part 1) and they support this proposal, agreeing that the RAD is an appropriate place to publish NPZs and their associated limitations (see Annex 1).

4.4 Engagement has been undertaken with Computer Flight Plan Service Providers (see Annex 1). All CFSPs were satisfied that the data would be available in Central Airspace and Capacity Database (CACD) via Business to Business (B2B), enabling them to access the necessary information. There were no objections to this proposal. NATS notes that both NAVBLUE and BAE have suggested this could be published in the AIP for reference; NATS does not intend to do this to avoid the risk of error from managing the same data in two different documents.

Flight Plan Buffer Zones

4.5 Now that the safety assessments have been completed, we are able to determine the size, shape and application of Flight plan Buffer Zones (FBZ) required for SUA within the FRA D2 region. Some additional

1 This assumes that any change would be Level 0 in accordance with CAP1616 Table A2: List of airspace-related elements of which some could be categorised as Level 0 – changes to Aeronautical Information Publication nomenclature or qualifying remarks

administrative changes to AIP ENR 5.1 are required to ensure that FBZs can be applied to SUA with an upper limit defined as an altitude and can therefore impact FRA dependent on the QNH. Specifically, we have identified a need to make these volumes of SUA Airspace Management Cell (AMC) manageable to be able to apply a FBZ. The SUA requiring this change are listed below:

- EG D007A
- EG D007B
- EG D009B
- EG D011A
- EG D011B
- EG D011C

4.6 The maximum upper limit of EG D011A, B and C is currently specified in the remarks column of AIP ENR 5.1. It is proposed that this is reflected in column 2 of AIP ENR 5.1 and the upper altitude normally used referenced in the the remarks column.

Stakeholder Engagement

4.7 Engagement has been undertaken with the MoD and they agree with the proposed changes (see Annex 1).

5. Conclusion and Next Steps

5.1 This document has provided a summary of the feedback which could impact the design and demonstrated there are no changes to the design as a result of the responses to the consultation.

5.2 The next step will be to write and publish the formal Step 4B Airspace Change Proposal and submit this to the CAA.

6. Glossary

ACC	Area Control Centre (there are two ACCs in the UK, Swanwick and Prestwick)
ACP	Airspace Change Proposal
AIP	Aeronautical Information Publication (where airspace and route definitions are published)
AMC	Airspace Management Cell
ANSP	Airspace Navigation Service Provider
ATC	Air Traffic Control
ATS	Air Traffic Services
B2B	Business to Business
Borealis Alliance	Alliance amongst north-west European Air Navigation Service Providers to drive better performance for stakeholders through business collaboration. The Alliance includes the ANSPs of Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Norway, Sweden and the UK.
CAA	The UK Civil Aviation Authority
CACD	Central Airspace and Capacity Database
CAP	Civil Aviation Publication (publications produced by the CAA)
CFSP	Computer Flight Plan Service Providers
COP	Co-ordination Point
D2	Deployment Two, the second deployment of FRA.
DAATM	Defence Airspace and Air Traffic Management
DCT	(Direct) Waypoint to waypoint routing, which does not use an airway
DSNA	Direction des Services de la Navigation Aérienne - French ANSP
ERNIP	European Route Network Improvement Plan
Eurocontrol	European Organisation for the Safety of Air Navigation; with 41 members it seeks to achieve safe and seamless air traffic management across Europe.
FBZ	Flight Plan Buffer Zones – areas for flight planners to avoid, providing separation from Special Use Airspace
FL:	Flight Level, the altitude reference which aircraft use at higher altitudes using standard pressure setting, essentially units of 100ft, i.e., FL255 equates approximately to 25,500ft.
FRA	Free Route Airspace
GAT	General Air Traffic
IAA	Irish Aviation Authority
ICAO	International Civil Aviation Organisation – an agency of the United Nations
LAMP	London Airspace Modernisation Programme; established to redesign the airspace in and around the London TMA region, providing a more efficient airspace design, modernising the route structure and making better use of aircraft and ATC technologies.
MoD	Ministry of Defence
NAT	North Atlantic Tracks
NATMAC	National Air Traffic Management Advisory Committee
NPZ	No Planning Zone
PBN	Performance Based Navigation – international requirements which standardise accuracy, safety and integrity for satellite navigation systems.
QNH	Altimeter sub-scale setting to obtain elevation when on the ground.
RAD	Route Availability Document: contains the policies, procedures and descriptions for route and traffic orientation. Includes route network and free route airspace utilisation rules and availability.
SID	Standard Instrument Departure
SRD	Standard Routing Document
STAR	Standard Terminal Arrival Route
SUA	Special Use Airspace – areas designated for operations of a nature that limitations may be imposed on aircraft not participating in those operations (i.e., military training areas)
UIR	Upper Information Region