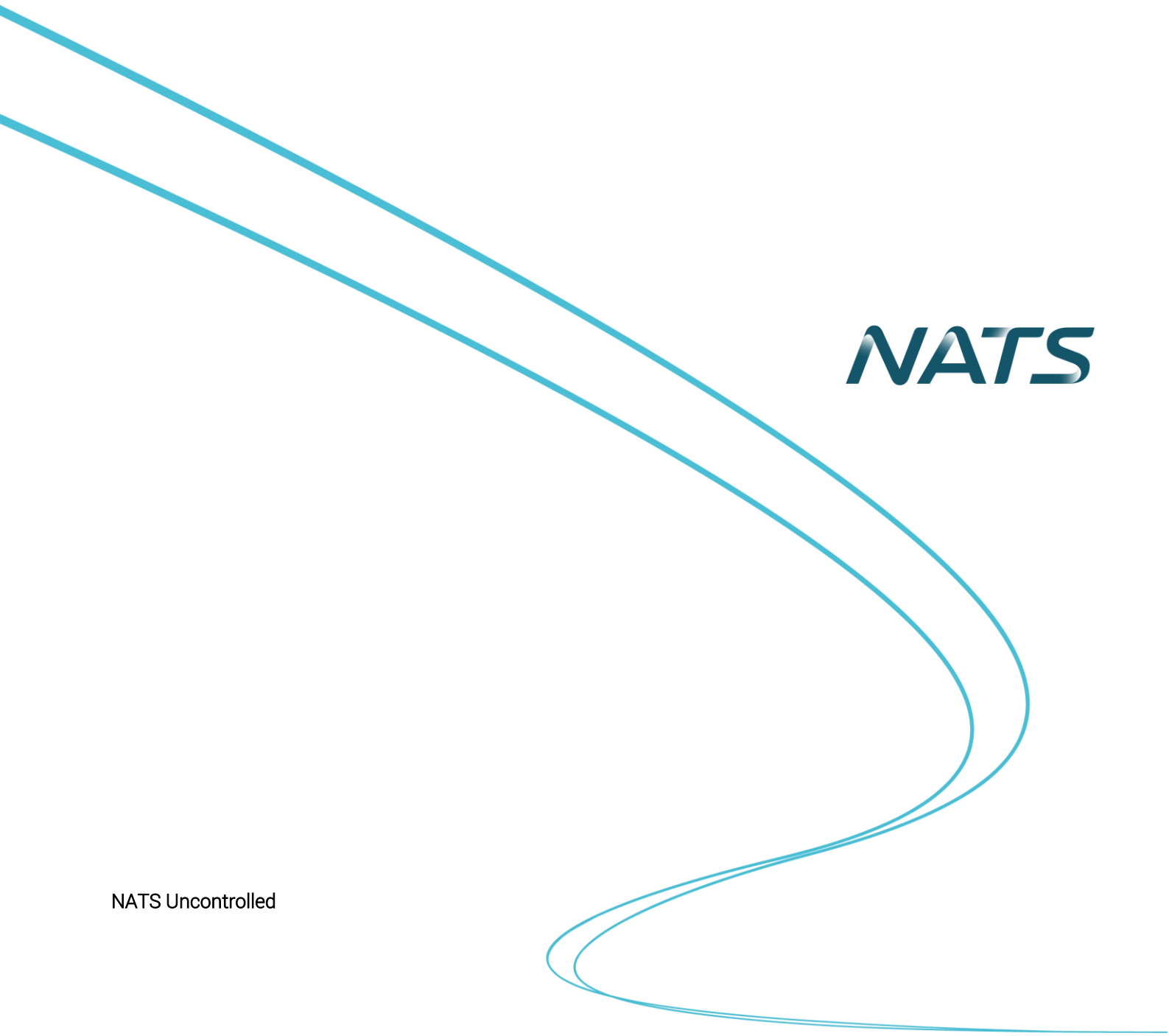
Free Route Airspace
Deployment 1

Gateway documentation:
Stage 3 Consult

Step 3D Collate and Review Responses



NATS Uncontrolled

Action	Position	Date
Produced	**Airspace Change Specialist** NATS Airspace & Future Operations	
Approved	**ATC Lead** NATS Prestwick Development	
Approved	**FRA Project Manager** Operations and Airspace Programme Delivery	

Publication history

Issue	Month/Year	Change Requests in this issue
Issue 1.0		Submitted to CAA for publication

References

Ref No	Description	Hyperlinks
1	FRA D1 CAA web page – progress through CAP1616	Link
2	Stage 1 Assessment Meeting Presentation	Link
3	Stage 1 Assessment Meeting Minutes	Link
4	Stage 1 Design Principles	Link
5	Stage 2 Design Options	Link
6	Stage 2 Design Option Evaluation	Link
7	Stage 2 Initial Options Appraisal	Link
8	Stage 3 Consultation Strategy	Link
9	Stage 3 Options Appraisal	Link
10	Stage 3 Consultation Document	Link

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. It summarises all consultation responses in accordance with the "you said" stage of "We asked, you said, we did".

1.2 This document aims to provide adequate evidence to satisfy:
Stage 3, Step 3D Categorisation of responses

2. Consultation Overview

2.1 NATS has completed a focused consultation on the proposed implementation of Free Route Airspace (FRA) across the majority of the Scottish Upper Information Region (UIR). This is the first deployment of the Free Route Programme, known as Deployment 1 (D1). FRA is mandated for airspace above FL310, however it is proposed to extend the FRA volume down to FL255, to reflect the division of Air Traffic Control (ATC) sectors at this level within the Scottish UIR. This will enable upper airspace controllers to use a single concept of operations within these sectors.

2.2 The timeline for this proposal is fixed by an agreed target implementation date not before 3rd December 2020. This fits in with the overall NATS change programme, including target AIP and AIRAC dates. Deployment across the whole of the UK is targeted to be complete not before 2024. This consultation is related to the proposed Deployment 1 airspace only.

2.3 The consultation strategy document (Ref 8) describes the focus of the consultation including previous engagement activities completed, the audience of the consultation and justification behind the consultation strategy.

2.4 A consultation document (Ref 10) was written for the proposed airspace change and provided to stakeholders. This includes a description of the current airspace, the proposed changes and impacts of the proposal.

2.5 A targeted group of aviation stakeholders were specifically engaged for this consultation. These included Air Navigation Service Providers (ANSPs) who border the NATS Prestwick UIR; Airlines; Airports; Data Houses/flight-planning providers; National Air Traffic Management Advisory Committee (NATMAC) members; and the Ministry of Defence (MoD). These are all listed in Annex A – List of Stakeholders. A description of engagement activities and reasoning behind why these specific stakeholders were targeted can be found in the Consultation Strategy Document (Ref 8).

2.6 The consultation targeted the stakeholders listed in Annex A – List of Stakeholders but was not exclusive to this list. Any individual or organisation could submit a response; however, we only specifically targeted the organisations listed.

2.7 The stakeholders were sent a notification email to inform them when the consultation was launched. This included information on how to respond via the online portal and that the consultation document was available to download, along with other supporting documents, from the portal.

2.8 The consultation has been conducted via an online portal which included an overview into the proposed changes, the consultation document available for download and a survey which allowed users to submit feedback through.

2.9 A list of the questions used in the online portal can be found in Annex B – Online Portal Questions.

2.10 We included a link to the consultation portal on the NATS Customer Affairs website, which is used to exchange information between NATS and our customer airlines.

2.11 The consultation commenced on 17th September 2019 and ended on 18th December. The consultation was extended for an additional week due to issues with the portal on the planned final day 11 December 2019; all stakeholders who had not responded up to that date were informed of the extension to ensure they could respond. The consultation was therefore open for 13 weeks.

2.12 Responses have been managed and uploaded to the portal by the CAA.

2.13 During the consultation, there were no responses which required any additional material or information.

2.14 Follow-up emails were sent to all targeted stakeholders, who had not submitted a consultation response, at the mid-point and on the final week of the consultation which included a link to the online consultation portal. This was to prompt stakeholders for a response and ensure that the consultation strategy was achieved.

3. Summary of Consultation Responses – FRA Options

3.1 A total of thirty-two responses were received in the thirteen-week consultation period. Thirty-one of the responses were submitted via the online portal and one (the MoD's) was emailed directly, as an attachment, to the NATS' Airspace Consultation mailbox.

3.2 The responses have been analysed and themed. The categorisation of responses has been split into those which may impact final proposals and those which would not. This is summarised later, in Section 4 of this document.

3.3 Responses were received from eleven airline targeted stakeholders: Delta Airlines, Royal Brunei Airlines, Qatar Airlines, Flybe, Emirates, Scandinavian Airlines, easyJet, Jet2, Lufthansa, Virgin Airline and KLM. The additional airline stakeholders were all prompted for a response twice during the consultation, as described in Section 2 above.

3.4 Responses were received from three airfield targeted stakeholders: Highlands & Islands Airport Limited (HIAL); Glasgow Prestwick Airport and Edinburgh Airport.

3.5 Responses received from two targeted data house/flight planners: Sabre and Jeppesen.

3.6 Responses were received from nine ANSPs: LFV (Sweden); Eurocontrol Maastricht Upper Area Control (MUAC); Irish Aviation Authority (IAA); Eurocontrol Central Flow Management Unit (CFMU); NAVIAIR (Denmark); DSNA ACC Brest (France); Latvijas Gaisa Saliksme (LGS) (Latvia); Isavia (Iceland) and Borealis Alliance.

3.7 A response was received from the Ministry of Defence (MoD); this was sent via email and manually uploaded to the online portal.

3.8 Three responses were received from targeted NATMAC stakeholders: British Aerospace Systems (BAE); Honourable Company of Air Pilots and Guild of Air Traffic Control Officers (GATCO).

3.9 There were three further responses from agencies/individuals not specifically targeted: SpaceHub Sutherland; Cairngorm Gliding Club and a response received from an individual who requested anonymity.

3.10 Stakeholders were asked if they supported the Airspace Changes being proposed. They were then further asked to rank their response to the specific options.

Overall, the Airspace Change is supported: Twenty-seven (84.4%) of the thirty-two responses Support the proposed changes; two (6.3%) have No Comment (neither support not object); 3 (9.4%) are Ambivalent (have mixed feelings). There were no Objections made to the proposal. Responses have been summarised below in Table 1:

Response ID	Organisation	Position Title	Do you support the airspace changes in this proposal?
FRA_1	Flybe	Flight Planning Manager	SUPPORT
FRA_2	Royal Brunei Airlines	Chief Pilot	SUPPORT
FRA_3	Delta Air Lines	Supervisor Flight Control International Operations	SUPPORT
FRA_4	Qatar Airways	ATM Manager Europe/Americas	SUPPORT
FRA_5	Emirates Airline	Manager Aeronautical Services & ATM	SUPPORT
FRA_6	Scandinavian Airlines	Route Analyst - SAS Dispatch & Flow Management	SUPPORT
FRA_7	easyJet Airline Company Limited	Head of Aircraft Operations	SUPPORT
FRA_8	Jet2.com	Air Traffic Services Manager	SUPPORT
FRA_9	Lufthansa Group	PBN expert	SUPPORT
FRA_10	Virgin Atlantic Airways Ltd	Senior Officer - Navigation Services	SUPPORT
FRA_11	KLM Royal Dutch Airlines	Flight Support Manager	SUPPORT
FRA_12	Air Navigation Solutions	Safety and Security Expert	SUPPORT
FRA_13	Glasgow Prestwick Airport	ATCO/Technical Co-ordinator	SUPPORT
FRA_14	Highlands & Islands Enterprise	Interim Specialist Adviser	SUPPORT
FRA_15	EUROCONTROL	Senior Expert Airspace Design	SUPPORT
FRA_16	Naviair	ATM Expert	SUPPORT
FRA_17	BREST ACC	Brest FRA Project Lead	SUPPORT
FRA_18	Latvijas Gaisa Satiksme	Head of Riga ATCC	SUPPORT
FRA_19	Isavia	Senior ANS Expert	SUPPORT
FRA_20	Sabre	Data Services	SUPPORT
FRA_21	Jeppesen UK Ltd	Navigation Database Specialist	SUPPORT
FRA_22	Defence Airspace Air Traffic Management	Squadron Leader	SUPPORT
FRA_23	GATCO	Vice President policy	SUPPORT
FRA_24	Borealis Alliance	Executive Director	SUPPORT
FRA_25	Irish Aviation Authority	Station Manager, En Route Operations	SUPPORT
FRA_26	LFV	Not answered	SUPPORT
FRA_27	Individual (MB)	Individual	SUPPORT
FRA_28	Eurocontrol Maastricht UAC	Team Leader Airspace and Network Planning	NO COMMENT
FRA_29	HIAL	DGMATS	NO COMMENT
FRA_30	BAE Systems (Warton)	Manager of Air Traffic Services	AMBIVALENT
FRA_31	Honourable Company of Air Pilots	Director of Aviation Affairs	AMBIVALENT
FRA_32	Cairngorm Gliding Club	Airspace representative	AMBIVALENT

Table 1: Consultation Responses Overview

3.11 The online portal included focused questions on whether the respondent supported 3 specific options for the proposed changes. These questions were not mandatory and therefore not answered by all respondents. An emailed response was also received from the MoD; therefore, these focused questions were answered a maximum of thirty times, from the thirty-two respondents.

3.12 The deployment options which were consulted on were:

- Option 1 - All ATS Routes are removed;
- Option 2 – ATS route structure is partially maintained;
- Option 3 – ATS route structure is maintained and aircraft are not constrained to flight plan the routes in the FRA area.

Figure 1 below provides a graphical representation of responses for the individual aspects:

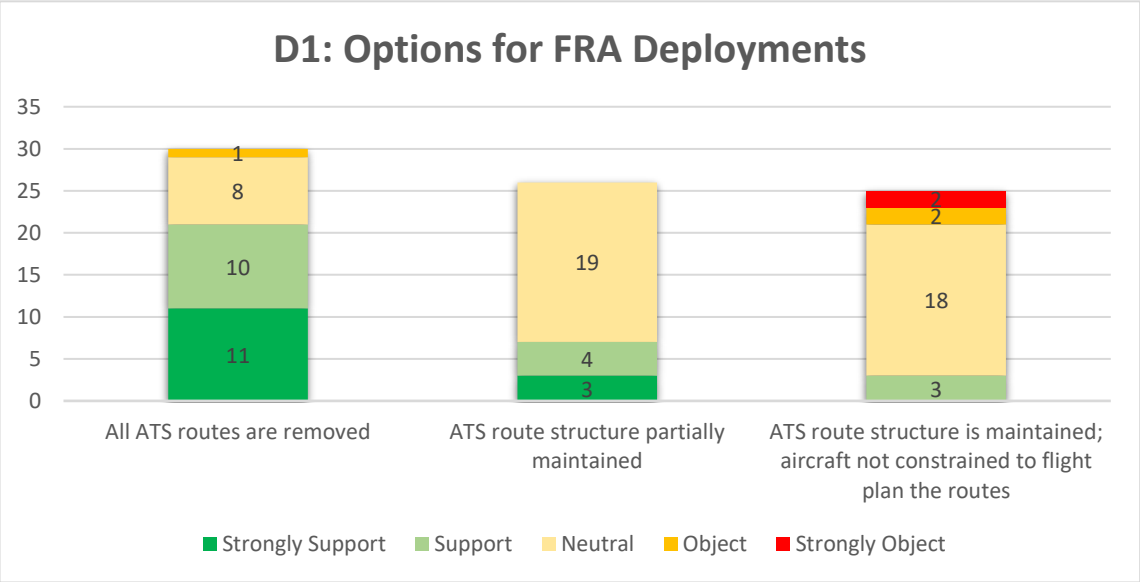


Figure 1: Consultation responses to themed questions (FRA D1 Options)

3.13 The majority of respondents showed support for Option 1. Of 30 responses to this question, 70% either strongly supported or supported this option. There were 8 neutral responses received (27%) and 1 objection (3%). No comments were received for this option.

3.14 There were 26 responses for Option 2, with 7 (27%) of respondents either strongly supporting or supporting. The majority of responses for this option were neutral (19 responses; 73%). No comments were received for this option.

3.15 Option 3 had least support. 3 of 25 respondents supported this option (12%). 72% of responses indicated neutral, and 4 responses objected or strongly objected to this option (15%). No comments were received for this option.

3.16 The MoD responded outside the online portal directly to the NATS Airspace Consultation mailbox. This was a formal letter which states that the MoD welcomed the engagement from NATS and that it was in support of Option 1 – all ATS routes removed.

3.17 There were 36 comments received overall. These were all comments on the overall proposal and not on the specific options. These have been reviewed and categorised.

4. Categorisation of Consultation Responses and Themes

4.1 The responses received have been reviewed and categorised; some comments had several different elements.

4.2 The responses and associated elements have been broken down into two types: those which may lead to changes of the proposed design and those which do not. These have been split out in Sections 4.7 and 4.8 below.

4.3 2 response elements were identified as having a potential impact on the final proposed design. These are summarised in Table 2, Section 4.7 overleaf.

4.4 32 response elements were captured as not having an impact on the final proposed design. These are summarised in Table 3, Section 4.8.

4.5 A further question was asked for a view on whether 5LNC waypoints should be co-located at NAVAID locations. There were 30 responses to this, and 13 comments provided. The responses are summarised in Table 4, Section 4.8.

4.6 This consultation complies with the first part of CAP1616's "We asked, you said, we did" approach.

4.7 Responses which may impact the final proposal

The following responses have the potential to impact on the proposed design:

Element Number	Response and ID	Summary of Comments	Themes of comment	Potential impact on the proposal	NATS response/ action
1	easyJet (online portal) NATS ref: FRA_7	Option 1. To allow seamless continuous climbs/continuous descents into and out of FRA, consideration should be given to a vertical buffer where the UK RAD will allow either directs or Airways to be used. The vertical buffer zone could be considered more of an option for Eurocontrol rather than any proposed change to the upper/lower split of the airspace so that a FPL submitted with either an Airway or a DCT would be accepted within this area. • At or below FL245 – Low Level Airways to remain permanently in place. • FL245 > FL265 – "Buffer Zone" DCT (FRA) or AWY can be filed to avoid Rejects and/or Step Climb/Descents. Essentially this would continue with Option 3 within this window. • FL265 and above – Only DCT (FRA) is possible.	Flight planning options	The introduction of a buffer zone for transition. The alternative to this is where each designated point is required to be filed prior to entry into FRA	This concept requires further exploration with Network Manager (NM) – carry forward to Stage 4A
2	easyJet (online portal) NATS ref: FRA_7	On implementation, Option 3 should be used for the initial 28-day cycle only, and then revert to Option 1, to minimise disruption. Suggests lessons could be learnt from Italy's implementation.	Implementation method	This would significantly impact on adaptation. This approach was taken by the Italian deployment; evaluation of Italian deployment of FRA shows the transition layer in the airspace design significantly impacted flight planning.	System and Training limitations do not currently allow us to complete a phased deployment for FRA Deployment 1. NATS will continue to communicate with customers between now and the proposed implementation date to ensure any impact of the changes are mitigated. This includes regular engagement in the lead up and post deployment to ensure any observed issues are managed. Lessons have been taken from the Italian implementation of FRA. For example, improving coordination with stakeholders, and avoiding the use of a transition layer in the airspace design.

Table 2: Responses which may impact the final proposal

4.8 Responses which do not impact the final proposal

The following 34 responses do not contain any new information or suggestions that could lead to an adaptation in the final proposed design. Additional relevant feedback is captured, including any actions or considerations arising. Table 3 below summarises these responses.

Response and ID	Summary	Themes of comment	Why the proposal is not impacted	Any relevant considerations/ feedback
Delta (online portal) NATS ref: FRA_1	We support free route airspace everywhere	General	No comments containing new information or suggestions	N/A
Royal Brunei Airlines (online portal) NATS ref: FRA_2	I believe the proposal is the way forward to more efficiently utilise the airspace.	General	No comments containing new information or suggestions	N/A
Qatar Airways (online portal) NATS ref: FRA_3	QR is supporting coordinated implementation of FRA in European Airspace	General	No comments containing new information or suggestions	N/A
Flybe (online portal) NATS ref: FRA_4	D1 will not impact Flybe operations but later deployments will. I have some concerns if the ATS network is completely removed and replaced by +100 RAD restrictions reproducing this network would be less user friendly. Or if AOs are able to plan the DCTs but tactically operate routes following the original ATS network fuel and time discrepancies could occur regularly. Although more applicable to future role outs further south, I am unsure on how current PTRs above FL260 could be applied?	RAD restrictions	This would need to be addressed by future ACP proposals and cannot be answered by Deployment 1	N/A
Emirates Airline (online portal) NATS ref: FRA_5	Regarding question 10. This is based on ATC having a robust plan should ATC capacities drop to a level where they cannot support FRA. This doesn't need to be as efficient as FRA but must ensure that operations can continue during the problem encountered.	ATC Capacity/resilience	No comments containing new information or suggestions	Alternative procedures in the event of any capacity related reductions are maintained by NATS which includes direct communications with affected customers to ensure any impacts are mitigated
Scandinavian Airlines (online portal) NATS ref: FRA_6	The FRA implementation option in the UK should align with Borealis implementation.	Alignment with Borealis	No comments containing new information or suggestions	The Borealis Alliance concept of operations (CONOPS) is being followed; we are already aligned with Borealis.
Scandinavian Airlines (online portal) NATS ref: FRA_6	Airways could be helpful as a guidance how to bypass complicated military areas e.g. in the North Sea. RAD restrictions need to be overviewed. Suggest removing RADs forcing traffic into military areas that has become available during the day (if any in the area).	Military areas/RAD restrictions	This comment relates to current RAD restrictions which mandate filing of CDRs when SUAs are inactive. It will not be an issue when CDRs are removed.	FRA will allow airspace users to flight plan the most efficient routing based on availability of airspace at D-1. IF the tactical situation allows (i.e. SUAs are no longer active) then restrictions would be lifted for Flight Planning and further tactical direct routings could be offered subject to workload and other constraints.
easyJet (online portal) NATS ref: FRA_7	Recommends early engagement from NATS with Flight Planning Service Providers to ensure proposals are achievable in all cases.	Engagement	No comments containing new information or suggestions	LIDO, Sabre and Jeppesen have all been consulted and support NATS FRA design considerations. Ongoing engagement will be conducted until FRA implementation is realised.
Jet2 (online portal) NATS ref: FRA_8	Fully support the implementation of free route airspace in order to facilitate direct routings and efficient and environmentally friendly flight profiles for all airspace users.	General	No comments containing new information or suggestions	N/A
Virgin Atlantic Airlines (online portal) NATS ref: FRA_10	In support but doesn't believe Deployment 1 will have much impact due to current DRA	General	No comments containing new information or suggestions	DRA will be superseded by FRA
KLM Royal Dutch Airlines (online portal) NATS ref: FRA_11	Financial impact of implementation and future maintenance of this change has not been included	Financial impacts	No comments containing new information or suggestions	Financial impact of implementation was included in Options Appraisal Stage 2b document (link here)
KLM Royal Dutch Airlines (online portal) NATS ref: FRA_11	RNAV 5 is not the most ambitious nav spec for a new airspace design which might impede future airspace capacity and may require rapid redesign. No clarification or impact assessment has been given for this choice.	RNAV specification	NATS have not specified a NAV spec requirement. It is for the CAA to specify requirements above the minimum.	All aircraft above FL100 are mandated to have RNAV5 equipage. this is non-limiting to traffic in the FRA airspace, and would be sufficient in a free route environment.
KLM Royal Dutch Airlines (online portal) NATS ref: FRA_11	Impact on connectivity to the lower route structure / deconfliction service coverage of airports in class G airspace to assure safe operation of commercial operations is not described / assured in the proposal.	Connectivity with lower route structure/Class G airspace	FRA airspace is above FL255 so Class G airspace is not affected.	Connectivity with lower route structures is described and has been considered.
Air Navigation Solutions (online portal) NATS ref: FRA_12	It's a progressive way to look at what is being proposed. We would like assurance that we can hand over a/c seamlessly.	General	No comments containing new information or suggestions	There will be no changes for airports handing traffic over to lower sectors. Such procedures are covered in inter unit LOAs which are not affected by the introduction of FRA above FL255.

Response and ID	Summary	Themes of comment	Why the proposal is not impacted	Any relevant considerations/ feedback
Highlands & Islands Airport Limited (HIAL) (online portal) NATS ref: FRA_13	Thanks for considering HIAL in your consultation, this proposal is outside of altitudes which would impact HIAL.	General	No comments containing new information or suggestions	N/A
Highlands & Islands Enterprise (online portal) NATS ref: FRA_15	Highlands & Islands Enterprise welcome the opportunity to comment on the FRA Dep 1 Consultation. We recognise the critical need to harmonise Space Port operations with the extant and developing UK Airspace; key is the promulgation of the relevant flight planning data that negates no-notice planning change. This suggests the development of recognised communication channels. The focus is for minimal disruption to airspace whilst delivering optimal safety for all stakeholders. We acknowledge and understand the worth added through the introduction of the Flight-Plan Buffer Zone, recognising that it will add the necessary safety margin to complement the change in operating procedures as well as the available supporting technologies. The nature of operations from Space Hub Sutherland (and other vertical launch sites in the Highlands & Islands Region) would best suit a process that employed temporary Special Use Airspace. Ultimately the aim remains to limit, through coordinated and synchronised activity with all relevant stakeholders, the optimal use of UK Airspace, and in both the National and Commercial interest of the UK.	Airspace accessibility	No comments containing new information or suggestions	The proposed operations of the SpaceHub could be accommodated in Free Route Airspace using the options identified, including Flight Plan Buffer Zones and/or the use of NOTAMs for Special Use Airspace (SUAs).
LFV (online portal) NATS ref: FRA_16	Seeks to clarify that option 1 refers to ATS routes for overflights and not for arr/dep as ATS routes might be retained as FRA Connecting Routes to/from aerodromes	Connecting Routes	No comments containing new information or suggestions	ATS routes would be retained in lower airspace as FRA connecting routes.
Eurocontrol Maastricht UAC (online portal) NATS ref: FRA_17	Maastricht UAC is neutral to the proposal due to the fact that the Areas of Responsibility are not adjacent.	General	No comments containing new information or suggestions	N/A
Eurocontrol (online portal) NATS ref: FRA_19	By implementing Cross Border Free Route Airspace, NATS is making a significant step in the right direction for a more flexible use of the airspace. This will bring benefits to airspace users as well as the service providers in the Borealis Alliance and EUROCONTROL.	General/FUA	No comments containing new information or suggestions	N/A
Naviair (online portal) NATS ref: FRA_20	As the development is a part of the Borealis Alliance work we are very well informed and in line with the proposal.	General	No comments containing new information or suggestions	N/A
Gaisa Satiksme (online portal) NATS ref: FRA_22	Very important is 5LNC database in ATC systems. Our system is able to "accept" new points for additional an area of interest.	5LNC	No comments containing new information or suggestions	N/A
Jeppeson UK Ltd (online portal) NATS ref: FRA_25	Well thought out and communicated	General	No comments containing new information or suggestions	N/A
Cairngorm Gliding Club (online portal) NATS ref: FRA_26	Our concern relates to access to airspace above FL255 for SSR equipped gliders, and for non-SSR equipped gliders operating within an active TRA(G). In para 7.5 it is stated that "There is not expected to be any impact on …". Which doesn't provide a lot of comfort. Unless it is guaranteed that such access will not be adversely affected, we object to the proposal. Under CAP1616 as we understand it, the process is also about seeking to reduce the constraints of controlled airspace for GA and to consider flexible use of airspace where possible. We therefore request that consideration be given to ensuring access to airspace for SSR equipped gliders above FL255 on a (very) occasional basis. Although such flights are rare, Gliding is an aspirational sport, not a means of transport, and lopping the top off the pinnacle of the sport is detrimental to it.	GA/FUA	The current process remains unchanged by the introduction of FRA.	TRA(G)s were established as a result of the change in airspace classification to Class C, at and above FL195 in 2007. Within Scotland there are 2 TRA(G)s available for use above FL245. Activation of these areas is limited to weekends only due to the negative accumulative effect of MOD segregated airspace requirements upon the network which would be further constrained by additional activation of the Upper TRA(G)s. CAA require NOTAM action to be initiated to activate these areas, and IFR traffic to be routed around activated areas, with a minimum of 2hrs notice.
Cairngorm Gliding Club (online portal) NATS ref: FRA_26	Can consideration be given to the restrictions placed on the activation of the Scottish North and South TRA(G) which are currently only able to be activated at weekends /public holidays and when there is an event supported by an ACN. Such requests for high altitude flight are quite infrequent, but when the meteorological conditions are right, it is frustrating when they can't be used.	TRA access	Outside scope of the proposal	Such changes to extant processes and airspace structures, including access to Upper Airspace, are outside the scope of this project. NOTAM data shows 5 TRA(G) activations in this upper airspace in the 3 year period 2017-2019.
Individual (online portal) NATS ref: FRA_27	Undoubtably this proposal is needed to reduce emissions and to make the routes as efficient as possible. Of course, the risk management side of the equation is significant. That is, ensuring the correct tools are available for ATC. Ensuring ACAS is not used as a control, rather its intended purpose as a last line of defence. Further still, opportunities for utilising ADS-B for operators to provide great SA for pilots would enhance the safety of this proposal within such congested airspace.	ATC tools/Safety	These are fundamental system-based requirements for the introduction of FRA and will be subject to the usual NATS verification and validation principles associated to any airspace or procedure changes.	In order to implement FRA significant changes are required to both accommodate trajectory based as opposed to route-based flight plans. In addition, inter centre data transfer requirements are significantly increased with the requirement not only to identify the exact dynamic point at which an aircraft will cross at a boundary but also the trajectory-based route that will be flown (that may have been altered from the flight plan).

Response and ID	Summary	Themes of comment	Why the proposal is not impacted	Any relevant considerations/ feedback
				Finally, ATC systems must absorb this information and provide the controller with Medium Term Conflict Detection Tools to identify any associated confliction issues well in advance so that corresponding action may be taken to resolve the issue.
DAATM (MOD) (consultation mailbox) NATS ref: FRA_28	The MOD are in agreement that your preferred Option 1 is the best way forward for this portion of airspace. However, as you have stated in para 7.4 of the consultation, prior to implementation, the LOA with RAF(U) Swanwick will need to be updated. MOD personnel at RAF(U) Swanwick believe that your suggestion would be appropriate, and I would invite you to engage with them in the normal way to update the LOA.	MOD Letter of Agreement		The LOA with RAF(U) Swanwick will be updated and MOD personnel engaged with to facilitate and progress this.
BAE Systems (Warton) NATS ref: FRA_29	Warton welcomes the engagement so far from NATS. It is evident there will be a significant impact to Warton operations, particularly over the Irish Sea. Presently there are agreements in place which frees up a small amount of airspace over the Irish Sea to allow BAE Systems to conduct dynamic test and development flying. This is something that would require further engagement as the project develops. Furthermore, BAE Systems would wish to retain standing coordination procedures, if not in its current form then in an abbreviated format which suits both parties. We would welcome NATS proactive engagement on any technological solutions that may facilitate our requirement for access to the airspace whilst allowing for further development of the FRA project. For example, predictability of aircraft routing, such as through intention codes, is a key enabler for ensuring the safety and flexibility of such dynamic operations when integrating in the increasingly complex and busy airspace.	Access to airspace LOA / FUA	Issues raised are already within the scope of the proposal. No new issues are raised.	BAE Systems have been engaged on a regular basis as the FRA DEP 1 solution has evolved over time. Intention codes will be retained within FRA airspace; airport designators will remain unchanged but exit designators for cross border interactions will be amended to simply show the boundary being crossed as opposed to a named reporting point on the boundary. BAE systems has been asked to identify which elements of existing agreements they wish to retain in order to establish mutually agreeable principles under which a new LOA or a separate annex to the existing LOA can be progressed.
Honourable Company of Air Pilots NATS ref: FRA_30	The Honourable Company of Air Pilots welcomes upper air space changes that support more economic routing and reduced environmental. Therefore, we support Option 1 in principle but cannot support its implementation, pending an assessment of the implications on flight deck crews that shows the change would be safe; hence our AMBIVALENT response to question 9. The paper notes that it would be exceedingly difficult to reverse Option 1 after implementation; it also mentions assessment of post-implementation procedures and workload for air traffic controllers. However, it does not mention any similar assessment of post-implementation procedures and workload for flight deck crews; that assessment is fundamental to any decision to implement an effectively irreversible change. Providing the assessment shows no adverse impact on flight deck workload (under normal non-normal and emergency conditions) or procedures, we would be delighted to change our response at Question 9 to 'Support'.	Impact on flight deck crews		We will engage with airlines to seek feedback on flightdeck workload. FRA has been introduced in many other States. Feedback from other Borealis Alliance members is positive; there has been no reporting of adverse impact on aircrew workload.
GATCO NATS ref: FRA_31	GATCO support the concept and justifications for the implementation of Free Route Airspace within the UK and across Northern Europe. GATCO supports Option 1.	General	No comments containing new information or suggestions	N/A
GATCO NATS ref: FRA_31	GATCO support the extension of FRA operations below the mandated level of FL310. The reasoning and justifications put forward by NATS are correct.	General	No comments containing new information or suggestions	N/A
GATCO NATS ref: FRA_31	GATCO notes that Deployment 1 is to be not before 3rd December 2020. GATCOs' membership believe this is a significant change to their method of operations, and as such, believe it should be deployed independently of any other major changes (such as DP En Route at Prestwick Centre which is currently targeted for Spring 2021) – and this includes any associated periods of conversion training. GATCOs' support for this date is conditional on this being a standalone change, which is allowed sufficient time to bed into the operation before any further changes are made. If this cannot happen, GATCO would propose that the Deployment strategy is reviewed in order to deconflict this change from others where possible. GATCO understands that FRA operations would not be possible without the implementation of DP-ER, therefore the timescales suggested in the document are considered unrealistic at both Prestwick and Swanwick. Subject to the above comment, GATCO are supportive of the proposed Deployment Strategy.	Deployment timing		Noted; the deployment schedule is taking into account change on change; including human factors and training requirements/impact.
GATCO NATS ref: FRA_31	GATCOs' support is also conditional on the ATM equipment in use at the respective ACC's being able to safely accommodate FRA direct routings across UIR boundaries, and that our members are not required to manually apply an excessive amount of individual procedures in order to overcome any shortcomings in the system.	ATC tools/support	These are fundamental system-based requirements for the introduction of FRA and will be subject to the usual NATS verification and validation principles associated to any airspace or procedure changes. In respect of ATCO procedures, it is the intent to simplify procedures as much as possible relying	In order to implement FRA significant changes are required to both accommodate trajectory based as opposed to route-based flight plans. In addition, inter centre data transfer requirements are significantly increased with the requirement not only to identify the exact dynamic point at which an aircraft will cross at a boundary but also the trajectory-based route that will be flown (that may have been altered from the flight plan).

Response and ID	Summary	Themes of comment	Why the proposal is not impacted	Any relevant considerations/ feedback
			on the inherent capabilities of the system rather than manual application of processes as is the requirement today.	Finally, ATC systems must absorb this information and provide the controller with Medium Term Conflict Detection Tools to identify any associated confliction issues well in advance so that corresponding action may be taken to resolve the issue.
Borealis Alliance (online portal) NATS ref: FRA_32	Very happy with the overall proposal and how it ties in with the other eight blocks of FRA with in the Borealis Alliance.	General	No comments containing new information or suggestions	N/A

Table 3: Responses which do not impact the final proposal

5. Summary of Consultation Responses: 5LNC Waypoints at NAVAID Locations

A further question was asked for a view on whether 5LNC waypoints should be co-located at NAVAID locations. There were 30 responses to this, and 13 comments provided. The responses are summarised in Figure 2 below:

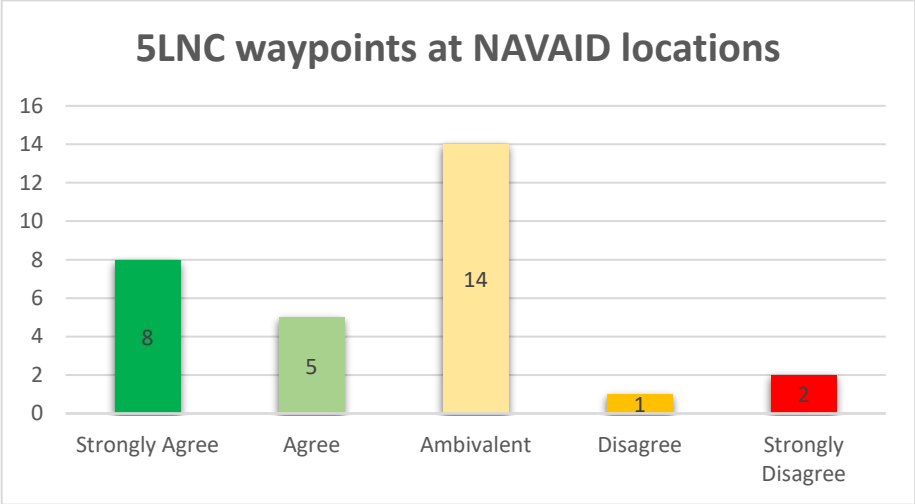


Figure 2 Consultation responses to themed questions (5LNC waypoints at NAVAID locations)

5.1 43% of respondents strongly agreed/agreed; 47% were ambivalent. 1 disagreed and 2 strongly disagreed.

Table 4. Responses for 5LNC Waypoints at NAVAID Locations

Response and ID	Response	Comments
Royal Brunei Airlines (online portal) NATS ref: FRA_2	Disagree	Same concern as the CAA.
Flybe (online portal) NATS ref: FRA_4	Strongly Agree	Possible consideration to naming new 5LNC points could be to start with the ICAO country designator. For example UK would start with EG, Norway would start with EN etc
Emirates Airline (online portal) NATS ref: FRA_5	Ambivalent	If there is a minimum distance between 3LNCs. Flight planning service providers should be able to ascertain which NAVAID is being selected
Scandinavian Airlines (online portal) NATS ref: FRA_6	Strongly Agree	This has been introduced in other countries within the ECAC area. We have no problem handling 5LNC. If you want to avoid flight planning via 3LNC, FRA relevance for VOR/DME NAVAIDS can be controlled via AIP.
Jet2 (online portal) NATS ref: FRA_8	Agree	It worked very well with Nateb and the NEW VOR/DME so see no reason why it would not work elsewhere provided the information on the changes is widely publicised out to the aviation community through the usual channels.
Lufthansa Group (online portal) NATS ref: FRA_9	Strongly Agree	After seeing the full picture, we understand the issue raised by the CAA. There is a discrepancy between the VOR name and the morse identification. This is mitigated by showing both the name and IDENT on the chart. We do not expect that this issue will cause problems. This issue will be solved when phasing out the respective VORs.
Virgin Atlantic Airlines (online portal) NATS ref: FRA_10	Ambivalent	These should be introduced with careful consideration. Replacement of the NAVAID ident by a 5LNC does not unduly cause an issue, provided that the naming of the navaid is distinct and does not present the opportunity for confusion. A VOR navigation record would ordinarily be coded by the navigation data houses

Response and ID	Response	Comments
		using the 3 letter identifier and therefore it is unclear exactly how the planning connection and therefore flight plan route will present itself to/from FRA in these circumstances. (for a departure example, departing via TRN, would a FPL have to be TRN...TUNOX almost co-located, to join FRA? In a RNAV environment this is less of a problem - it depends on the continued use of conventional procedures. This issue should not prevent FRA moving forward, but the best solution with industry should be sort prior to implementation, to ensure maximum operational efficiency and safety. The discussions, such as those held within the auspices of the Lead Operator Technical Group, should continue.
KLM Royal Dutch Airlines (online portal) NATS ref: FRA_11	Ambivalent	Following issues are to be considered: -Nav database size limits -Screen clutter impeding safe enroute navigation -Ability of CFSP's to assure correct planning by adding the FIR location in their logic, as well as in CHMI for flight-plan proofing. -Other FRA implementations have not co-located 5LNC's -When removing the airway structure, the conventional beacons not necessarily qualify as optimal located significant points for the FRA.
Eurocontrol (online portal) NATS ref: FRA_19	Strongly Agree	Ideally, the NAVAIDS should remain published in AIP ENR 4.1 as reference for ground based NAV. They should NOT be part of an ATS route or FRA definition.
Naviair (online portal) NATS ref: FRA_20	Ambivalent	Naviair only introduces 5LNC for those NAVAIDs which we withdraw. However - using 3LNC is a challenge which we are currently evaluating.
Jeppeson (online portal) NATS ref: FRA_25	Strongly Disagree	What is going to stop the use of 3LNCs in a flight plan in a FRA environment? In the case of NEW, flight plans are surely not mentioning NEW because no airways are associated with it. In a FRA environment, having both a 3LNC and a 5LNC surely gives two options instead of one. Are all 3LNCs going to be blocked by NM / IFPS? Why not make all 3LNCs TERMINAL as opposed to ENROUTE points? Given the amount of 5LNCs in your airspace already today, surely losing the current 3LNCs in enroute airspace is no great loss? I'm not trying to give you a solution here per se, just trying to say that I do not believe the co-location proposal is not the solution, even if NM recommend it
Individual (online portal) NATS ref: FRA_27	Strongly Disagree	Apart from the obscured labelling on nav displays, the 5LNC has no correlation with a geographic reference point .Here in Australia, Airservices Australia removed many navaids across the country and replaced them with randomly selected 5LNCs from the ICAO database. This significantly reduced situational awareness of pilots as they no longer had a geographic reference point. In your proposal there is the possibility that some people would be using traditional navaid identifiers and others using the new 5LNC, and as such introducing risk of pilots operating unknowingly in the same piece of airspace - particularly a concern during abnormal or contingency situations. A solution would be to publish the 3LNC along with the first two characters of the FIR code. E.g. BCNLE or something similar, provided it aligns with Navdatabase 424 coding rules.
GATCO (online portal) NATS ref: FRA_31	Ambivalent	It is GATCOs opinion that the constant changing of waypoint naming, and the introduction of multiple new waypoints adds complexity to the controller task. It is likely that having both 3 and 5 LNC may be confusing for crews as described and for controllers. It is clear also that having 2 identical 3LNC would also be problematic.

5.2 Consolidated 5LNC Response

Taking note of the mixed feedback received from this consultation NATS intends to revise its proposed co-location concept in respect of 5 and 3 letter name codes in order to address the following principle issues:

- To address the EU Network manager recommendation to all ECAC States to remove or collocate 5 /3 letter name codes as current flight plan acceptance systems are unable to differentiate between points that are similarly named. (FRA 5, 31)

- To address the issue of misunderstanding and potential garbling effect as a result of the potential dual use of both 5LNC and 3LNC points that would co-exist in the same position. (FRA 2, 10, 11, 25, 27, 31)

- To address the current requirement to retain VOR/DME beacons for the purposes of Airfield related approach procedures as well as extant conventional Standard Instrument Departures that connect with existing lower route structures where the joining point is associated with a VOR/DME beacon. (FRA 10, 9, 6, 8, 11). As well as the requirement to retain VOR/DME information for the purposes of positional fixing for RNAV 5 only equipped aircraft operating without GNSS. (FRA 19)

- To mitigate as far as practicable the issue of multiple changes and geographical awareness, whilst accepting that ICAO provided 5LNC may not be available that simply add 'EG' before the existing 3LNC. (FRA 31, 27, 4)

This will be carried forward to Stage 4A – Update Design.

6. Conclusion and Next Steps

6.1 The immediate next step will be to write and publish the Step 4A document which will detail how NATS intend to respond to the consultation feedback (in accordance with you said, we did").

6.2 In that document, we will consider amending the final design based on the relevant responses summarised in Table 2. The suggestions will be considered and either progressed or discounted, with reasons.

6.3 We will also consider additional refinements and technical amendments which have come to light as part of NATS' policy of continually seeking airspace improvement.

6.4 We will consider the feedback provided for the 5LNC Waypoints at NAVAID locations and this will influence the final proposal on this issue.

6.5 A resultant revised design will be described.

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

7. Reversion Statement

7.1 Should the proposal be approved and implemented, depending on the Option implemented, reversion to the pre-implementation state would be:

- FRA Option 1 (in which all ATS routes are removed) – Complex and very difficult
- FRA Option 2 (in which the ATS route structure is partially maintained) – Complex and very difficult
- FRA Option 3 (in which the entire ATS route structure is maintained) – more easily achieved

Due to the removal of ATS Routes the changes proposed by Option 1 and 2 would permanently and significantly change the airspace structure, hence making reversion complex and extremely difficult. For Option 3, due to the retention of the route structure, reversion could be more easily achieved.

In the unlikely event that there are unexpected issues caused by this proposal, then short notice changes could be made via NOTAM or by adding Route Availability Document (RAD) restrictions. For a permanent reversion, the changes would have to be reversed by incorporating this into an appropriate future AIRAC date. Due to the limitations of NATS Area System (NAS – flight and radar data processing) large scale airspace changes are only implemented four times a year.

8. Annex A – List of Stakeholders

Links to the consultation were placed on the NATS Customer Website and the NATS public website.
The consultation is most relevant to the stakeholders listed below but is not exclusive to this list. Any individual or organisation could submit a response; we specifically targeted the organisations listed below.

Airlines

Aer Lingus
Air Canada
Air France
Air New Zealand
American Airlines
Austrian Airlines
BA Cityflyer
BAR
British Airways
Cityjet
Cargolux
Delta Airways
DHL
Eastern Airways
EasyJet
Emirates
Etihad
FedEx
FinnAir
FlyBe
Gamma Aviation
Gulf Air
Iberia
Jet2
KLM
Logan Air
Lufthansa
Qatar Airways
Ryanair
SAS
Saudia
Stobart Air
Tag Aviation
Thomas Cook
Thomson/ TUI
Turkish Airlines
UK Air Tanker
United Airlines
Virgin Airlines
WizzAir

Air Navigation Service Providers (ANSPs)

ANS Finland (Finland)
Avinor (Norway)
Direction des Services de la Navigation Aérienne (DSNA) (France)
DSNA ACC Brest (France)
DSNA ACC Reims (France)
EANS (Estonia)
Eurocontrol Maastricht Upper Area Control Centre (MUAC)
Eurocontrol Central Flow Management Unit (CFMU)
Irish Aviation Authority (IAA) (Ireland)
Isavia (Iceland)
Latvijas Gaisa Satiksme (LGS) (Latvia)
LFV (Sweden)
NAVIAIR (Denmark)
RAF(U) Swanwick (UK Royal Air Force)

Data Houses/ Flight-planning providers

Lido
Jeppesen
Lufthansa Systems
NavBlue
Sabre

National Air Traffic Management Advisory Committee (NATMAC) Members

Aviation Environment Federation (AEF)
Airport Operators Association (AOA)
Aircraft Owners & Pilots Association (AOPA UK)
Association of Remotely Piloted Aircraft Systems (ARPAS UK)
British Airways (BA)
British Aerospace Systems (BAE Systems)
British Airline Pilots Association (BALPA)
British Air Transport Association (BATA)
British Balloon & Airship Club (BBAC)
British Business & General Aviation Assoc (BBGA)
British Gliding Association (BGA)
British Hang Gliding & Paragliding Assoc (BHPA)
British Microlight Aircraft Association (BMAA)
British Model Flying Association (BMFA)
British Parachute Association (BPA)
British Helicopter Association (BHA)
European UAV Systems Centre Ltd
General Aviation Safety Council (GASCo)
General Aviation Alliance (GAA)
Guild of Air Traffic Control Officers (GATCO)
Helicopter Club of Great Britain (HCGB)
Heathrow Airport Ltd
Heavy Airlines
Honourable Company of Air Pilots
Light Aircraft Association (LAA)
Light Airlines
Low Fares Airlines (LFA)
Ministry of Defence (MoD) via the Defence Airspace and Air Traffic Management (DAATM)
PPL/IR

Airports[1]	
EGAA Belfast Aldergrove	EGPE Inverness
EGAC Belfast City	EGPF Glasgow
EGAE Londonderry/Eglinton	EGPG Cumbernauld
EGEC Campbeltown	EGPH Edinburgh
EGEO Oban	EGPI Islay
EGNO Warton	EGPK Prestwick
EGNS Isle of Man	EGPL Benbecula
EGNT Newcastle	EGPM Scatsa
EGNV Durham Tees Valley	EGPN Dundee
EGPA Kirkwal	EGPO Stornoway
EGPB Sumburgh	EGPT Perth/Scone
EGPC Wick	EGPU Tiree
EGPD Aberdeen	Highlands & Islands Airports Ltd (HIAL)
Other	
QinetiQ	UK Space Agency

1 MoD Airfields are not included since consideration of these is incorporated in the DAATM joint response.

9. Annex B – Online Portal Questions

The following questions were included in the online portal for users to complete. Imposed answers have also been shown below, alongside whether the question was mandatory or not.

1. What is your name? (*Mandatory*)
2. What is your email address? (*Mandatory*)
3. Please enter your postcode, UK only. (Most relevant to your response home/ work/ organisation etc.) (*Optional*)
4. If responding from outside the UK, please supply an address or location description. (*Optional*)
5. Who are you representing? - Representing (*Mandatory*)
    a. I am responding as an individual (If the user selects this, Q6–8 will not be provided)
    b. I am responding on behalf of an organisation (If the user selects this, Q6–8 will be provided)
6. Please note all responses will be published. Are you happy for your name to be included in the response publication? (*Mandatory*)
    a. Yes – I want my response to be published with my name
    b. No – I want my response to be published anonymously
7. What is your organisation name? (*Mandatory* – if answered "b" to Q4)
8. What is your position/ title? (*Optional*)
9. Do you support the airspace changes in this proposal? (*Mandatory*)
    a. SUPPORT – I support the proposed changes
    b. NO COMMENT – I neither support or object
    c. AMBIVALENT – I have mixed feelings
    d. OBJECT – I object to the proposed changes
10. Please rank your response to the individual aspects
    (Options available: Strongly Support/ Support/ Neutral/ Object/ Strongly Object)
    a. FRA Option 1. In which all ATS routes are removed
    b. FRA Option 2. In which the ATS route structure is partially maintained.
    c. FRA Option 3. In which the ATS route structure is maintained, but aircraft are not constrained to flight plan the routes within the FRA.
11. Do you agree that a unique 5LNC should be introduced co-located at all existing enroute navaid positions?
    (Options available: Strongly Agree/ Agree/ Ambivalent/ Disagree/ Strongly Disagree)
    Comments – 5LNC waypoints at NAVAID locations (free text field)
12. Please give your feedback comments on the overall proposal (free text field)
13. Would you like to make more comments on any individual aspects? (Options available: Yes/No)
14. Comments about FRA Option 1. In which all ATS routes are removed (free text field)
15. Comments about FRA Option 2. In which the ATS route structure is partially maintained.
16. Comments about FRA Option 3. In which the ATS route structure is maintained, but aircraft are not constrained to flight plan the routes within the FRA.
17. Other comments
18. Upload a document (please attach a copy of any documents you wish to include).

10. Annex C – Glossary of Terms

ACP Airspace Change Proposal
AIP Aeronautical Information Publication (where airspace and route definitions are published)
ANSP Airspace Navigation Service Provider
AOR Area of responsibility
ATC Air Traffic Control
ATS Air Traffic Services
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
CDR Conditional Route
CONOPS Concept of operations
D1 Deployment One, the first deployment of FRA across the area shown in Figure 1.
D-1 Flight planning term for the day prior to planned flight
DCT (Direct) Waypoint to waypoint routing, which does not use an airway.
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 to provide separation from Special Use Airspace.
FIR Flight Information Region (Airspace below FL255)
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
FMC/FMS Flight Management Computer/Flight Management System
FRA Free Route Airspace
ICAO International Civil Aviation Organisation – an agency of the United Nations.
IFPS Integrated Flight-plan Processing System
LOA Letter of Agreement – legal agreement which defines airspace sharing or interface arrangements
MTCD Medium Term Conflict Detection. Generic term for any ATC tool which looks ahead and predicts when aircraft are likely to be in conflict
NATMAC National Air Traffic Management Advisory Committee
NDB Non-Directional Beacon (radio navigation beacon)
NM Network Management
NOTAM Notice to Airmen – a notice filed with an aviation authority to alert aircraft pilots of potential hazards or at a location that could affect the safety of the flight.
NPZ No Planning Zone – area where a flight plan is not permitted to enter at all or only when meeting prescribed criteria.
PCP SESAR Pilot Common Project.
PBN Performance Based Navigation – international requirements which standardise accuracy, safety and integrity for satellite navigation systems.
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.
SESAR Single European Sky ATM Research A collaborative project to completely overhaul European airspace and its air traffic management
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)
TMA Terminal Manoeuvring Area
UIR Upper Information Region (Airspace above FL255)
VOR VHF Omnidirectional Range (radio navigation beacon)

End of document