

Airspace Change Proposal:

Supplementary Airspace Consultation

May/June 2019 – Doncaster Sheffield Airport



Doncaster
Sheffield
Airport

*Robin
Hood*

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Introduction

- ▶ DSA submitted a CAP725 ACP to the CAA in May 2018;
- ▶ It proposed the introduction of PBN SIDs, IAPs and an additional CTA (CTA-13);
- ▶ Fortunately, despite the delay to the regulatory process, the national VOR rationalisation programme has been delayed and the GAM VOR is not due for withdrawal until Dec 2022;
- ▶ The CAA requires that DSA consult aviation stakeholders on the options for the airspace classification associated with the proposed CTA;
- ▶ The purpose of this consultation is therefore to gather the views of aviation stakeholders on the airspace classification of this additional CTA (CTA-13).

Existing ROGAG PDRs – The need for SIDs

- ▶ ROGAG PDRs were created as PDRs because CAA did not permit SIDs to route outside controlled airspace (the requested airspace was not granted by the CAA)
- ▶ With the removal of GAM, the PDRs cannot be simply re-written as there is nothing upon which to base them (i.e. no VOR)
- ▶ CAA now permits 'in-extremis' SIDs to leave controlled airspace (i.e. transit Class G) but an acceptable safety case has to accompany such a proposal

Development of the ROGAG SIDs

- ▶ Two RNAV-1 (GNSS) SIDs were designed to replace the three ROGAG PDRs;
- ▶ New designs have slightly greater track distance than their predecessors in order to make every effort to reduce the noise impact to local communities;
- ▶ SID design took into account the Safety Buffer Policy for R313 (which we now know is likely to be withdrawn upon the closure of RAF Scampton);
- ▶ Flyability assessments with B738 and E195 showed that the altitude requirements were challenging under extreme conditions;
- ▶ Following amendments, Flight Validation was conducted using B738 and A320 simulators ultimately resulting in flyable and satisfactory submitted designs;

Development of the ROGAG SIDs

- ▶ In simulations, not all aircraft are reaching the required altitudes to:
 - Fly above the R313 Safety Buffer
 - Remain wholly contained in Controlled Airspace all the way to ROGAG

- ▶ Why?
 - There is insufficient track distance to achieve the required altitude, i.e. the climb gradient is too demanding for aircraft at MTOM
 - Safety Buffer avoidance is not a requirement of the PDRs, it is a requirement for SIDs

- ▶ How do the PDRs differ from the SIDs in an operational sense?
 - ATC (rather than the PDR procedure) ensure aircraft are above R313 - this is tactically managed by controllers
 - The PDRs simply require aircraft to cross ROGAG at FL160 and have no other altitude constraints
 - The PDRs are not contained inside Controlled Airspace all the way to ROGAG

- ▶ Why different to today?
 - The PDRs do not need to be contained in Controlled Airspace nor does the procedure have to provide separation from R313 as this is tactically managed
 - The SIDs should be contained within Controlled Airspace all the way to ROGAG (albeit there is dispensation subject to an acceptable safety case to leave Controlled Airspace) and be separated from R313

What was the airspace proposal?

- ▶ The introduction of five RNAV SIDs to replace three conventional SIDs and three PDRs;
- ▶ The introduction of RNAV IAPs;
- ▶ The introduction of an additional Class D CTA to the south of DSA to contain the ROGAG SIDs until they reached the route network (intended to protect CAT rather than hinder VFR traffic); and
- ▶ The lowering of the base of ATS Routes L603 and L60, (above R313) to allow the SIDs to be contained within controlled airspace to position ROGAG (NERL supported this proposal);

What has changed?

- ▶ Whilst the MoD and NERL supported these proposals, some national General Aviation bodies opposed them (NB: some local GA organisations did not oppose them);
- ▶ In light of this opposition and the recent release of the UK Airspace Modernisation Strategy, DSA has been prompted by the CAA to re-evaluate the airspace classification proposal with a view to proposing that CTA-13 be classified as Class E with a Transponder Mandatory Zone (TMZ) instead of Class D;
- ▶ Note that DSA:
 - Does not currently deny access to the existing Class D airspace by VFR or IFR itinerant flights or from conducting training operations within the CTR/CTA and is committed to continued provision of equitable access to all the airspace under its jurisdiction; and that
 - Already has a Listening Squawk of 6170 and 126.225

What is 'in scope' for this consultation?

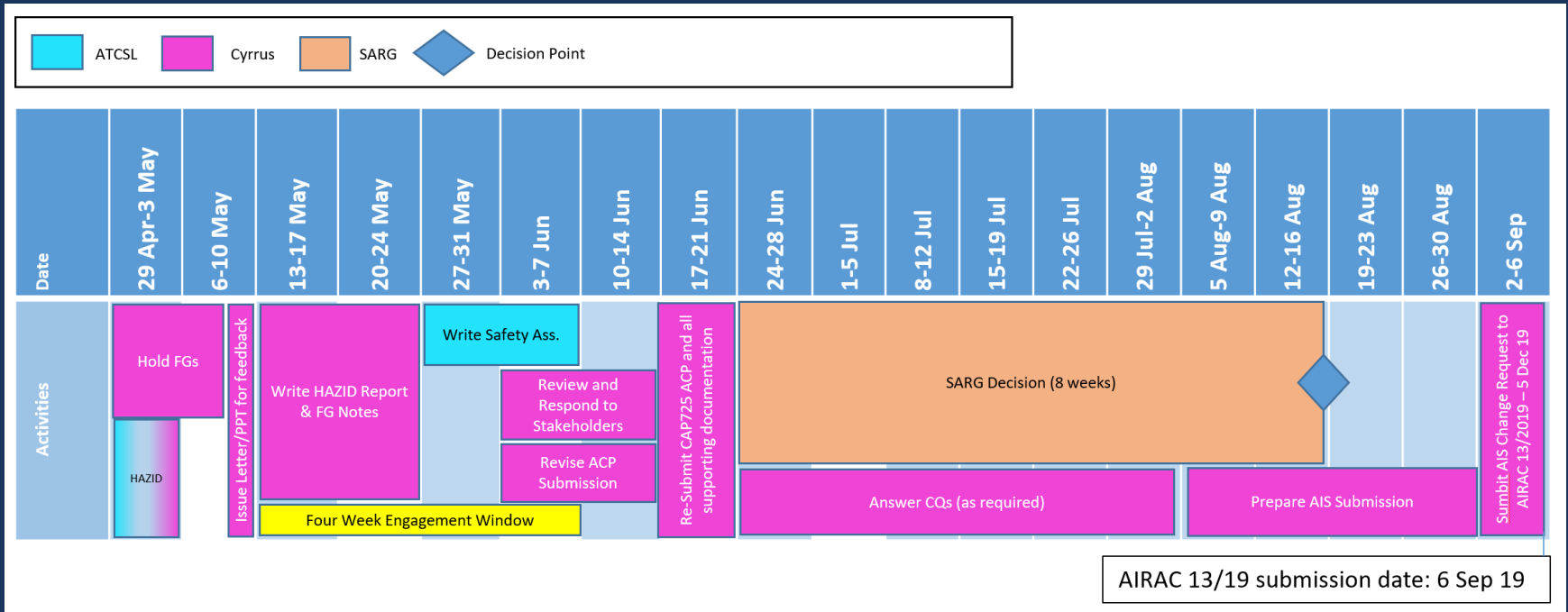
- ▶ Within the scope of this supplementary consultation, DSA welcomes feedback on the airspace classification of the additional CTA to the south of DSA intended to contain the ROGAG SIDs (CTA-13)
- ▶ The following is outside the scope of this supplementary consultation:
 - The introduction of five RNAV SIDs to replace three conventional SIDs and three PDRs;
 - The introduction of RNAV IAPs; and
 - The lowering of the base of ATS Routes L603 and L60, (above R313) to allow the SIDs to be contained within controlled airspace to position ROGAG (NERL supported this proposal);
- ▶ Whilst further comments on the matters outside the scope of this supplementary consultation will be noted, these matters have already been consulted upon

CAP 725 ACP Process – Where are we now?

- ▶ Stage 1 - Framework Brief with CAA SARG ✓
- ▶ Stage 2 - Focus Groups and Proposal Development ✓
- ▶ Stage 3 - Preparation for Stakeholder Consultation ✓
- ▶ Stage 4 - Stakeholder Consultation & Formal Proposal
- ▶ Stage 5 - Regulatory Decision
- ▶ Stage 6 - Implementation
- ▶ Stage 7 - Operational Review

More detail on the CAP725 process can be found via the CAA website

Schedule – What needs to be done?



Existing Airspace

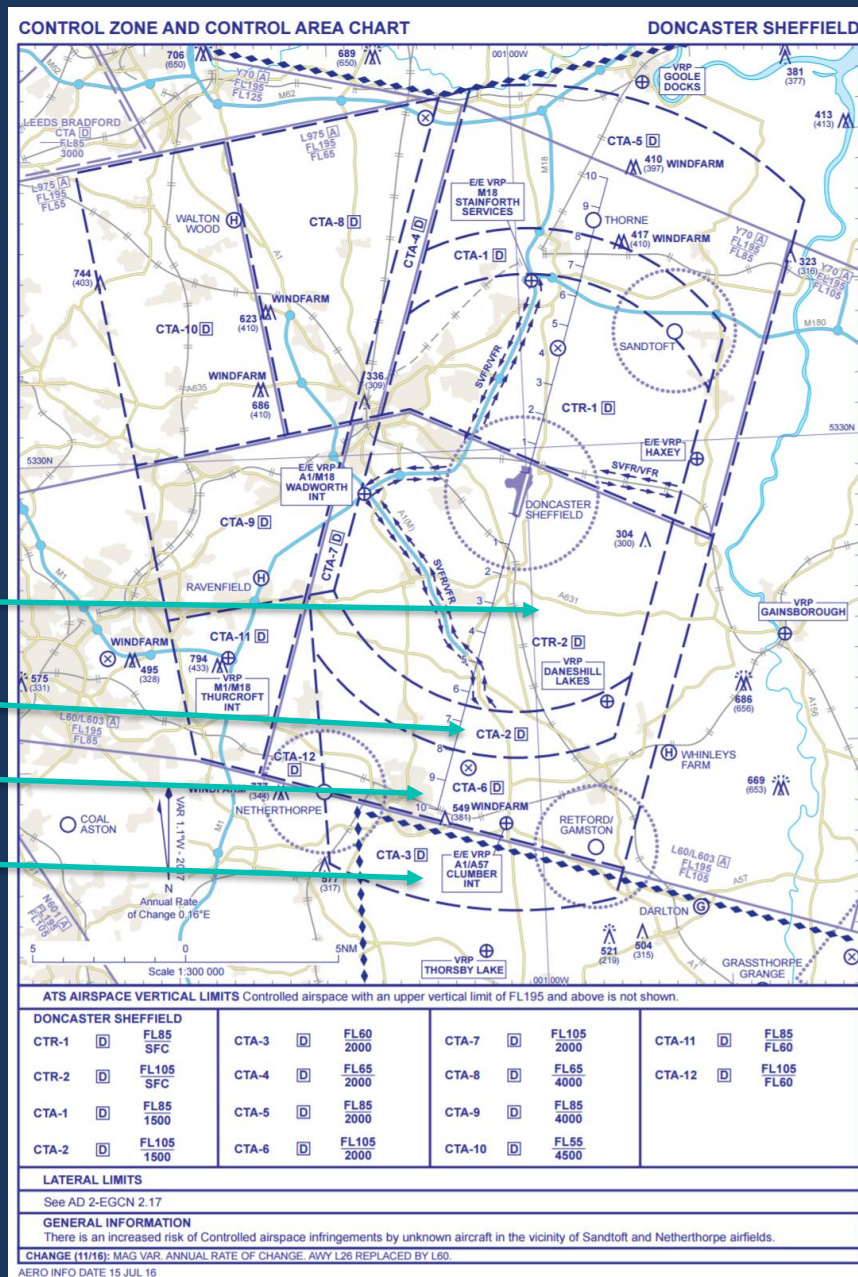
▶ Class D CTR and CTAs

CTR-2 SFC-FL105

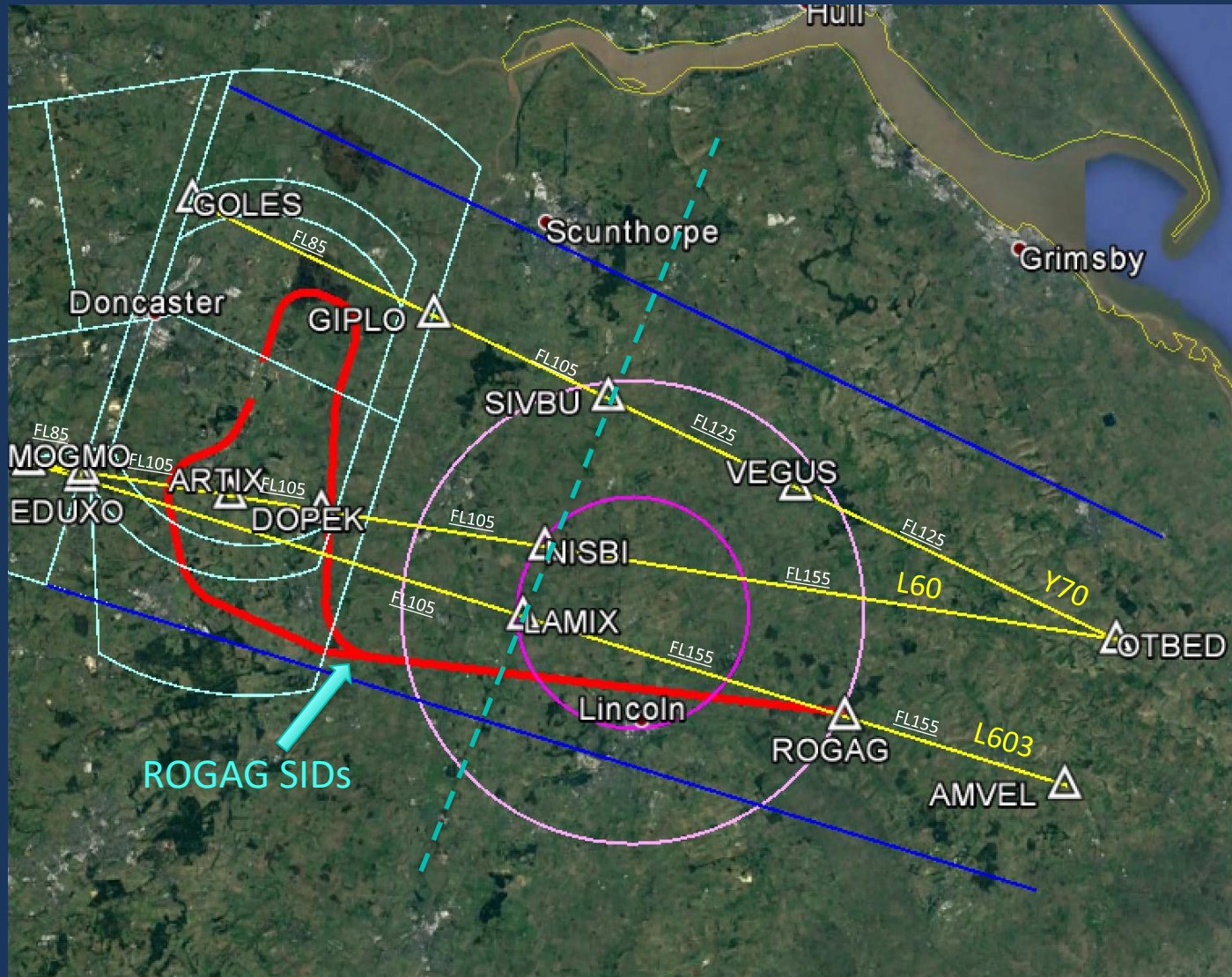
CTA-2 1500-FL105

CTA-6 2000-FL105

CTA-3 2000-FL60



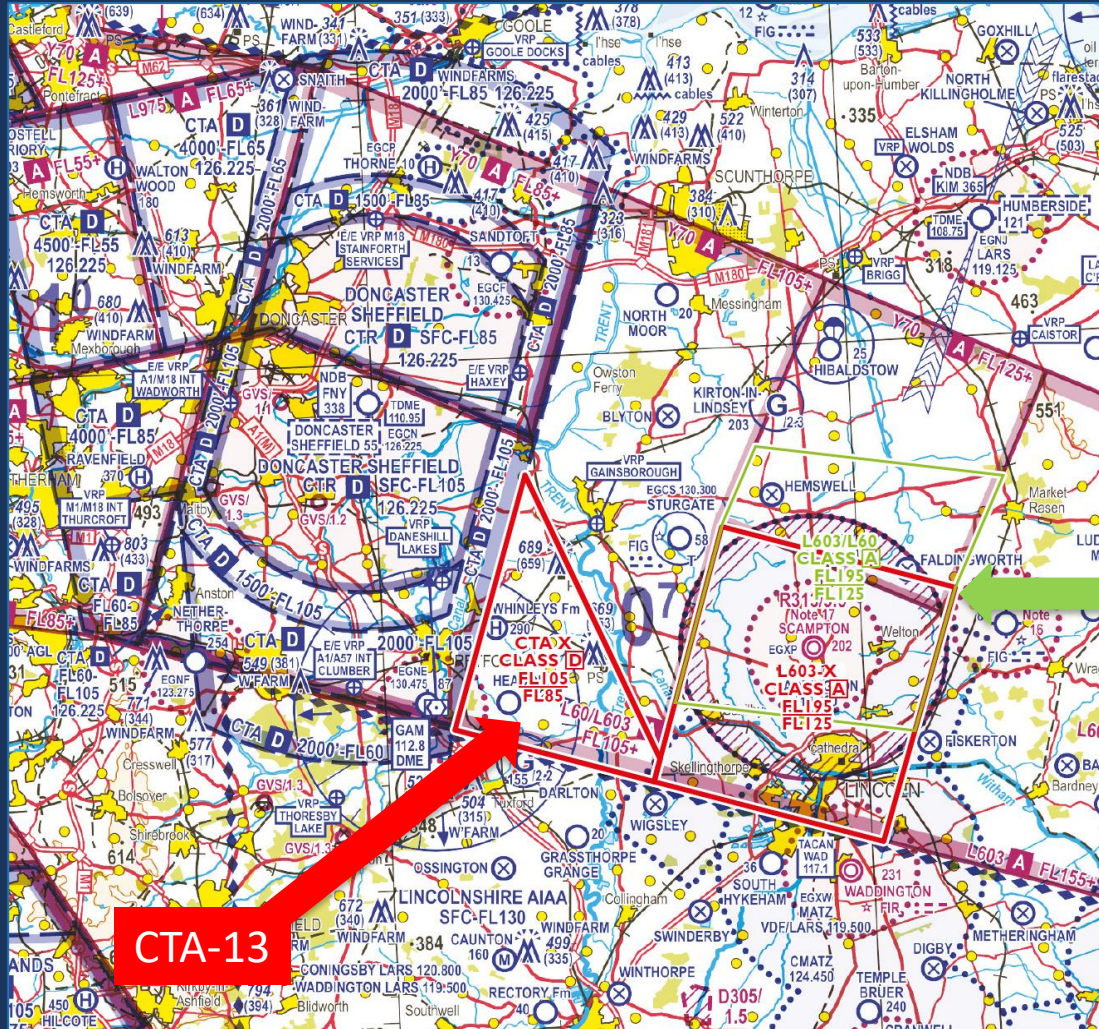
PC Airspace



KEY

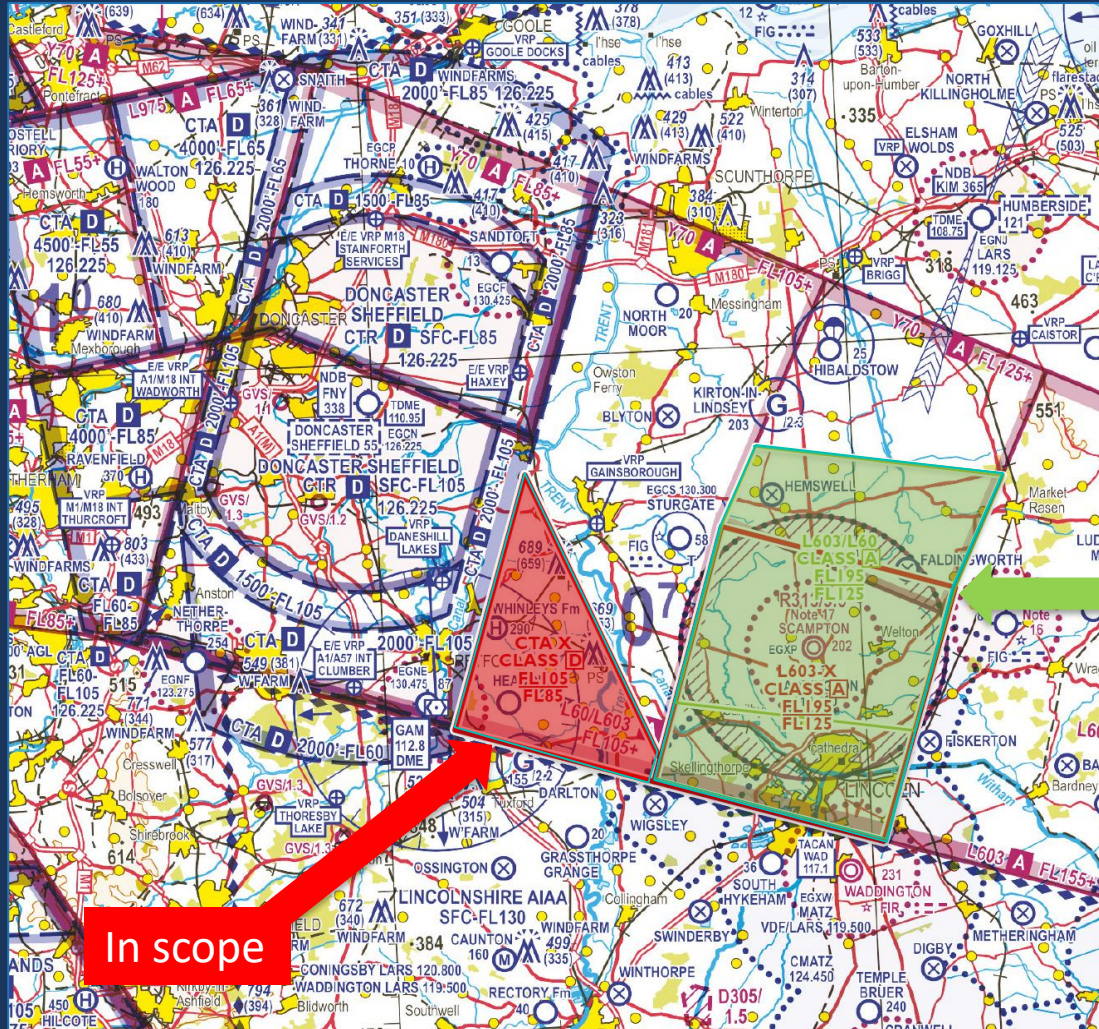
- ROGAG SIDs
- ATS Routes
- Existing DSA CTA/CTR
- - - ATS Route level change
- R313
- R313 Buffer Zone

The original Airspace Proposal



Portion of L603/L60 to be lowered

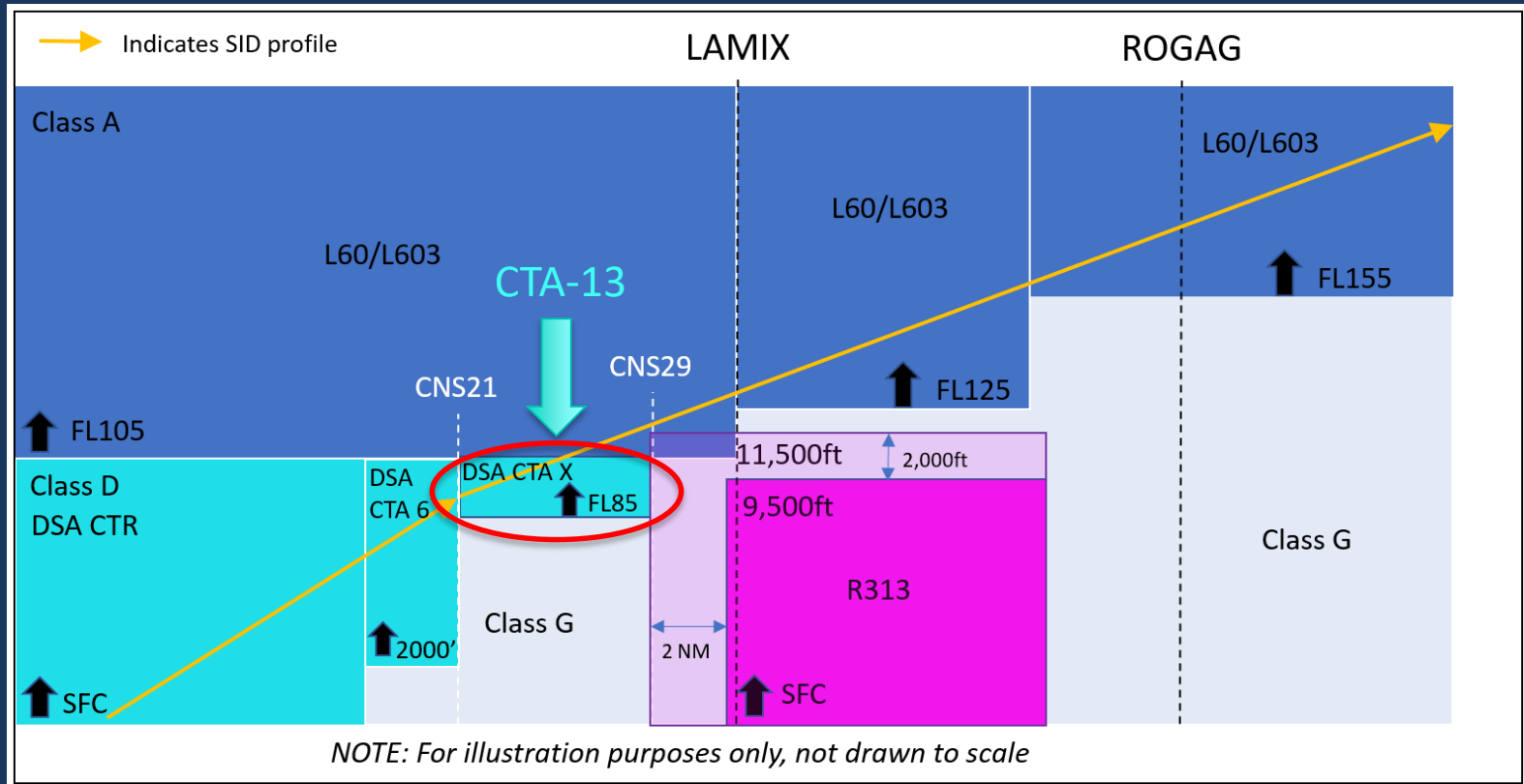
The original Airspace Proposal



Outside scope

In scope

The original Airspace Proposal – Cross Section



In scope

Usage of the proposed airspace volume

- ▶ In 2018, there was an average of 6-7 departures per day via the existing ROGAG procedures (it is anticipated that this figure will slowly rise);
- ▶ It is difficult to identify (quantify) the usage of the volume of airspace by 'Other Airspace Users' (i.e. GA or Military) as:
 - The usage is not declared/planned/scheduled, it is random and sporadic;
 - Many do not speak to DSA ATC;
 - Some do not carry transponders;
 - Of those that carry transponders, many do not squawk Mode C;
 - This traffic is not 'recorded' in the same way as CAT movements.

UK ATS AIRSPACE CLASSIFICATIONS

Civil Aviation Authority

**I
F
R**

ATC SEPARATION PROVIDED

TRAFFIC INFORMATION PROVIDED

SPEED LIMITATION

RADIO

ATC CLEARANCE REQUIRED?

**V
F
R**

ATC SEPARATION PROVIDED

TRAFFIC INFORMATION PROVIDED

VMC MINIMA

SPEED LIMITATION

RADIO


ATC CLEARANCE REQUIRED?

CONTROLLED AIRSPACE

A

IFR ↔ IFR

Not applicable (unless notified for ATC purposes)




YES

C

IFR ↔ VFR SVFR ‡

Not applicable (unless notified for ATC purposes)




YES

D

IFR ↔ IFR SVFR ‡

IFR ATC VFR
At traffic avoidance advice CTR.

below FL100 **250 KIAS**



YES

E

IFR ↔ IFR

IFR ATC IFR VFR
(when practicable)

below FL100 **250 KIAS**



YES

OUTSIDE CONTROLLED AIRSPACE

F

Class F was removed in 2014 and airspace returned to Class E or G.

below FL100 **250 KIAS**

Not required

NO

G

ATSCAS Services
Procedural, Deconfliction Traffic, Basic

below FL100 **250 KIAS**

Not required

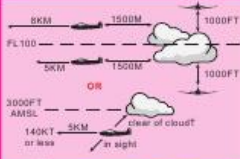
NO

VFR FLIGHT NOT PERMITTED SVFR AVAILABLE IN CTRs




VFR SVFR ‡ ↔ IFR SVFR ‡

VFR ATC VFR



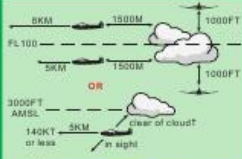
below FL100 **250 KIAS**




YES

SVFR ‡ ↔ IFR SVFR ‡

VFR ATC IFR VFR



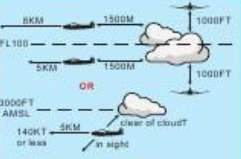
below FL100 **250 KIAS**



YES

Not provided

IFR ATC IFR VFR
(when practicable)




below FL100 **250 KIAS**

Not required

NO

ATSCAS Services
PARTICIPATING TRAFFIC:
Procedural, Deconfliction Traffic, Basic

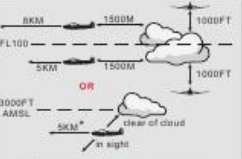


below FL100 **250 KIAS**

Not required

NO

ATSCAS Services
Procedural, Deconfliction Traffic, Basic



below FL100 **250 KIAS**

Not required

NO

Known Traffic Environment

	D	E	
I F R	ATC SEPARATION PROVIDED		
	TRAFFIC INFORMATION PROVIDED		
	SPEED LIMITATION	below FL100 250 KIAS	below FL100 250 KIAS
	RADIO		
	ATC CLEARANCE REQUIRED?	YES	YES
V F R	ATC SEPARATION PROVIDED		Not provided
	TRAFFIC INFORMATION PROVIDED		
	VMC MINIMA		
	SPEED LIMITATION	below FL100 250 KIAS	below FL100 250 KIAS
	RADIO		Not required
ATC CLEARANCE REQUIRED?	YES	NO	

NOT a Known Traffic Environment

Don't require ATC clearance or radio to enter Class E

Pilots should comply with ATC instructions if radio equipped

ATC Instructions Mandatory

Generic Class D & E comparison

	Pros	Cons
Class D a known traffic environment	<ul style="list-style-type: none"> • Less unexpected avoiding action or deviation from course; • Continuous Climb Operations (CCOs) more likely to be achieved; • Ability to coordinate all aircraft activity; • Reduction in likelihood of AIRPROX (or worse); • More accurate Traffic Information (TI); • Less delays likely; • Access available on request; • Aircraft without serviceable transponders have to declare their presence and request entry. 	<ul style="list-style-type: none"> • Less flexible access for other airspace users; • Perception by some that it is difficult to access and that permission is routinely denied; • Non-RT aircraft excluded unless prior arrangement made.
Class E an unknown traffic environment	<ul style="list-style-type: none"> • Ease of access for other airspace users including non-RT capable (non-RT aircraft permitted access); • More operational freedom for VFR users. 	<ul style="list-style-type: none"> • Greater likelihood of avoiding action or deviation from course; • Inability to coordinate all aircraft activity (instructions to VFR aircraft are not mandatory); • Controllers are not required to separate VFR and IFR aircraft as that is the responsibility of VFR aircraft, however, in reality, controllers have a 'duty of care' to separate them anyway; • Aircraft can enter without communicating with ATC first; • Less accurate TI as unaware of intentions of other aircraft; • Greater likelihood of delays to CAT (either being held on the ground or vectored due to conflicting traffic affecting their climb-out); • Increased likelihood of AIRPROX (or worse); • CCOs less likely if conflicting traffic present; • Intentions of aircraft operating close to the edge of CAS are unpredictable; • Aircraft without serviceable transponders can enter without controllers' knowledge of their presence.

Is there a middle ground?

Yes, the CAA permit Class E to be enhanced with one or both of the following:

- ▶ **Transponder Mandatory Zone (TMZ):** 'airspace of defined dimensions wherein the carriage and operation of pressure-altitude reporting transponders is mandatory; and/or
- ▶ **Radio Mandatory Zone (RMZ):** 'airspace of defined dimensions wherein the carriage and operation of suitable/appropriate radio equipment is mandatory'.

Safety and Airspace Regulation Group



14 August 2015

Policy Statement

POLICY FOR RADIO MANDATORY ZONES AND TRANSPONDER MANDATORY ZONES

Purpose of RMZ/TMZ establishment

- ▶ Para 1.2: The CAA's statutory obligation under the Transport Act 2000 Section 70 (1) include the need to 'satisfy the requirements of all airspace users', and to 'secure the most efficient use of airspace consistent with the safe operation of aircraft and expeditious flow of air traffic'
- ▶ Para 1.3: 'The creation of an RMZ/TMZ allows the airspace to retain its original classification, yet also allows for enhanced situational awareness for all users and for ATC. This therefore increases safety for all aircraft flying in that block of airspace while imposing minimal additional restrictions'
- ▶ Para 3.1: 'All airspace users should have reasonable and safe access to airspace. RMZs and TMZs are utilised to enhance the conspicuity of aircraft operating within or in the vicinity of complex or busy airspace for the safety of all members of the flying communities'

RMZs

- ▶ Requires the carriage of radio communication equipment (capable of maintaining direct two-way communication with ATC on the notified frequency) in notified airspace;
- ▶ Visual Flight Rules (VFR) flights operating in airspace designated as an RMZ shall establish two-way communication before entering the dimensions of the RMZ;
- ▶ Before entering an RMZ, an initial call containing the designation of the station being called, call sign, type of aircraft, position, level, the intentions of the flight and other information as prescribed by the competent authority shall be made by pilots on the appropriate communication channel;
- ▶ The pilot shall maintain continuous air-ground voice communication watch, on the appropriate communication channel, unless in compliance with alternative provisions prescribed for that particular airspace by the Controlling Authority; however,
- ▶ A pilot wishing to operate in an RMZ without the necessary radio communication equipment may be able to do so in accordance with conditions promulgated for the specific RMZ, or in accordance with agreed tactical arrangements with the RMZ Controlling Authority.
- ▶ Note: This may typically require the pilot of a non-RT aircraft to contact the RMZ Controlling Authority prior to departing, stating the route information detailed above and estimated RMZ exit and entry times and prevailing traffic conditions may preclude RMZ Controlling Authority approval to non-radio aircraft (or an aircraft with a non-functioning radio) to operate within a RMZ.

TMZs

- ▶ Requires the carriage of radio navigation equipment (capable of operating in Modes A and C, and have the capability and functionality prescribed for Mode S.6.2) in notified airspace;
- ▶ All flights operating in airspace designated by the competent authority as a TMZ shall carry and operate Secondary Surveillance Radar (SSR) transponders capable of operating on Modes A and C or on Mode S, unless in compliance with alternative provisions prescribed for that particular airspace by the Air Navigation Service Provider (ANSP); however,
- ▶ A pilot wishing to operate in a TMZ without serviceable transponder equipment may be granted access subject to specific arrangements agreed with the TMZ Controlling Authority.
- ▶ Note: This may typically require the pilot of an aircraft without a serviceable transponder to contact the TMZ Controlling Authority prior to departing, stating the route information detailed above and estimated TMZ exit and entry times and prevailing traffic conditions may preclude TMZ Controlling Authority approval to aircraft not equipped with transponders (or an aircraft with a non-functioning transponder) to operate within a TMZ.

Benefits of RMZ and TMZ

- ▶ The introduction of a RMZ ensures that intentions of VFR aircraft are known increasing the situational awareness of Air Traffic Controllers enabling the provision of 'Traffic Information' to aircraft (traffic information is available to VFR aircraft on request and can assist them in the avoidance of IFR aircraft);
- ▶ Knowing VFR aircraft intentions through radio contact assists Air Traffic Controllers in decision making as they provide separation between IFR aircraft;
- ▶ The introduction of a TMZ allows full utilisation by CAT of Airborne Collision Avoidance Systems (ACAS);
- ▶ Gliders are often difficult to detect using Primary Surveillance Radar and most are not equipped with transponders meaning controllers and ACAS systems are often unaware of glider locations. The introduction of a TMZ would reduce this issue.

Options for CTA-13

- ▶ Option 1. Do Nothing, i.e. do not change the existing proposal of Class D airspace;
- ▶ Option 2. Change classification to Class E;
- ▶ Option 3. Change classification to Class E but add RMZ;
- ▶ Option 4. Change classification to Class E but add TMZ; (Preferred Option)
- ▶ Option 5. Change classification to Class E but add RMZ/TMZ;

Discussion

Next Steps

- ▶ Complete all Focus Group activity and issue notes and slides (including to those unable to attend but considered key aviation stakeholders);
- ▶ Four-week consultation period for aviation stakeholders to consider airspace classification (to end on 7 Jun 19);
- ▶ HAZID with operators and ATC to inform the Safety Assessment;
- ▶ Consultation Feedback Letter (will be sent to those invited to participate);
- ▶ Revision of the Airspace Change Proposal Submission;
- ▶ Earliest planned implementation via AIRAC 13/2019.

Thank you