Space Launch and Orbit Group

Launch Session

November 2022

Welcome

Agenda

Welcome

July meeting follow up

- Range ADS-B vs. radar
- Marine licensing contacts
- Launch Collision Avoidance (LCOLA)

Launch session 12 month review

Current challenges

- Applications/Licensing
- Regulator's Licensing Rules

Future opportunities

- Engagement/outreach plan
- Operability US/UK

Hot topics

- NR23 price control consultation
- Airspace change CAP1616

AOB

Welcome

Housekeeping

- Please mute microphones
- Please use chat or raise Teams hand to ask any questions…or raise your hand in the room!
- We will publish the slides and actions from this meeting, not verbatim minutes, on our website at caa.co.uk

July follow up

Range ADS-B

Question: Does the CAA accept ADS-B as a means of compliance instead of radar?

Applicants are welcome to propose solutions with suitable capability, redundancy and reliability to support the proposed launch operations or representative launch operations.

ABS-B could be used if the approach is justified and the systems used can be argued and evidenced to be appropriate.

Useful sources of information:

SIA 6 (1) (e) [definition of monitoring]

SIR 42 (1) (e/f) [requirement to have the technical capability to perform monitoring]

SIR 95 (2) [requirement for spaceflight operator to ensure range is fit for purpose]

CAP2211 – Guidance for range control licence applicants and licensees 5.23-26

Range Assessment Criteria - Tracking/Surveillance Tab

Marine licensing

Key information for marine licensing in the UK

Country	England		Wales		Scotland		Northern Ireland	
Area from coast (in nautical miles)	0-12	12-200	0-12	12-200	0-12	12-200	0-12	12-200
Legislation	Marine and Coastal Access Act 2009		Marine and Coastal Access Act 2009		Marine (Scotland) Act 2010	Marine and Coastal Access Act 2009	Marine Act (Northern Ireland) 2013	Marine and Coastal Access Act 2009
Licensing Authority	Marine Management Organisation		Natural Resources Wales		Marine Scotland		Department of Agriculture, Environment and Rural Affairs	Marine Management Organisation
Website	https://www.gov.uk/topic/planning-development/marine-licences		https://naturalresources.wales/permits-and-permissions/marine-licensing/		https://www.gov.scot/publications/marine-licensing-applications-and-guidance/		https://www.daera-ni.gov.uk/articles/marine-licensing	https://www.gov.uk/topic/planning-development/marine-licences

Marine licensing

Key information for marine licensing in the UK

Relevant extract from Marine and Coastal Access Act 2009

S66 Item 3 '*To deposit any substance or object anywhere in the sea or on or under the sea bed from a vehicle, vessel, aircraft, marine structure or floating container which was loaded with the substance or object —*

(a) in any part of the United Kingdom except Scotland, or

(b) in the UK marine licensing area

Space launch activities contacts:

Marine Management Organisation
Mark.Queshri@marinemanagement.org.uk , Paul.Stephenson@marinemanagement.org.uk and Lucy.Cowell@marinemanagement.org.uk

Marine Scotland
neil.macleod3@gov.scot and MS.MarineLicensing@gov.scot

Natural Resources Wales
maria.alvarez@cyfoethnaturiolcymru.gov.uk and Karen.Perrow@cyfoethnaturiolcymru.gov.uk

Launch Collision Avoidance Analysis

LCOLA screening enables potential collisions between a launch vehicle and space objects to be identified and screened from the launch windows.

What are applicants & operators required to do?

- Applicants are required to identify and mitigate hazardous events including potential collisions with crewed and uncrewed active space objects
- Operators must take reasonable steps to reduce these risks to ALARP. For collision with space objects during launch, we have specified what these reasonable steps are:
  - Implement necessary arrangements with USSPACECOM to perform LCOLA screening
  - Implement processes to implement appropriate closures in launch windows

What is required in an application?

- Relevant consideration within the safety case on the identified hazardous scenarios
- Descriptions of measures to control this risk (as above) and how they have been defined and implemented

CAP 2220 sets out what is required

12 month round up

Launch round up

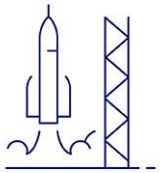
A summary of what we have explored over the last 12 months at SPLOG meetings

Airspace	Airspace change, airspace applications, NATS – tactical elements of airspace change
Applications	At every meeting we have provided a current update
AEE	Assessment of environmental effects - lessons learned, how we have improved our process
Other organisations	Marine Management Organisation, NATS, DfT

Current challenges

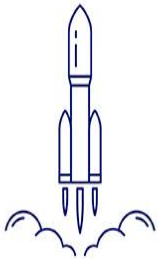
Applications

Licences issued



Spaceport

1



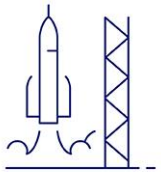
Launch

Range

ANO

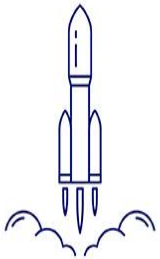
Applications

Licence applications received



Spaceport

1



Launch

5

Range

2

ANO

2

Applications

Insights from our first year as the UK's space regulator

Preparation & quality reduces application time	We have seen applications that have appeared to have been rushed, with required information not included. It is essential enough time is planned for the submission to be complete and of sufficient quality to avoid applications being put on hold
Use generic/typical data or Information	Whilst we recognise that data, people and processes are often in development at the point of application, please use generic/typical data or information so the application can continue. We expect a degree of iteration during the licensing process.
Consider and build in key requirements early	Upfront focus on key requirements (e.g. engaging a competent expert to conduct the Assessment of Environmental Effects or taking account of security early in the safety case development) will likely avoid delays and save time in the long run.
Feedback welcome	We have received some good feedback which shapes ongoing development of our systems and processes. Please continue to let us know directly what works well and what needs improving.

Applications

Good quality documents and evidence for an application takes time

	Start			Submit application						Total Time
Launch	Document & evidence preparation 3-6 months			Licensing process 9-18 months				1-2 months	Planned activity	13-26 months
Spaceport	Document & evidence preparation 3-6 months			Licensing process 6-18 months			1-2 months	Planned activity		10-26 months
Range	Document & evidence preparation 2-4 months			Licensing process 6-18 months			1-2 months	Planned activity		9-24 months
Orbital	Document & evidence preparation 2-4 months (New Operators)			Licensing process 6-12 months			1-2 months	Planned activity		9-18 months

Licensing processing time is a guide, it could be slightly shorter or longer dependent on the complexity of the application and the quality of the submitted documents and evidence, we will always process your application as fast as possible, planning with shorter timescales is at your own risk.

Regulator's Licensing Rules

Seven legislative tests

There are 7 tests that must be assessed as part of your application

1. National Security
2. International Obligations
3. National Interest
4. Financial
5. Fit and Proper Persons
6. Safety Assessment
7. Environment

Regulators Licensing Rules

Sets out the CAA required to makes assessments against the statutory tests when considering a licence application

Information for all applicants	Rule 3.2	TABLE A
And additional information		
Launch Operator licence application	Rule 3.3	TABLE B
Return Operator licence application	Rule 3.4	TABLE C
Orbital Operator licence application	Rule 3.5	TABLE D
Spaceport licence application	Rule 3.6	TABLE E
Range Control Services licence application	Rule 3.7	TABLE F

CAP2221: Regulator's licensing rules (caa.co.uk)

Proposals to change the rules

Qualifications & Employment	Narrow the scope of these requirements to reduce the number of individuals required to provide information Change certificates requirement to a listing of relevant qualifications
Business plan & other financial records	Consider less prescriptive financial listing allowing for proportionality in relation to size, risks and circumstances
Prescribed Roles	Review which prescribed roles must be assigned at the time of application
Security /Cyber Security	Request for underpinning risk assessment
Document certification	Align with government certification requirements

- Consider role for licensing statements – checking the application is complete
- Consider timing for training manager and training manual approvals

Future opportunities

Engagement

CAA

Engagement with industry

Operability UK/US

Hot topics

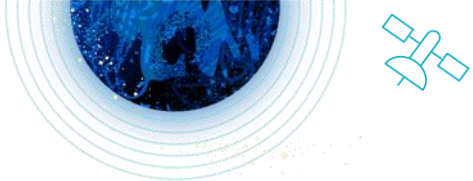
NR23 price control

NR23 consultation

The CAA sets maximum charges NATS (En Route) Plc - NERL

- NR23 is the price control period Jan 2023 to Dec 2027, for which CAA sets maximum charges NATS (En Route) Plc – “NERL” – can charge airlines for the en route air traffic services they provide.
- We are consulting on our initial proposals through CAP2394. Consultation closes on 13 Dec 2022.
- New for this price control period, unlike previous ones, is the need to consider the services NERL provides to new types of airspace user – including services associated with space launches.
- Currently the regulatory framework provides only for charges to traditional airspace users (airlines). During NR23, however, we expect NERL will need to being to provide services to new users.
- Under the User Pays Principle, it is appropriate that the beneficiaries of services meet the cost of those services. In the case of space launches, therefore, it is appropriate that space operators pay for relevant services.
- However, given that space – in air traffic terms – is an emerging sector, as an industry we do not yet understand enough the scope, scale and cost of services that NERL will need to provide and it would therefore be very challenging to establish a robust charging framework on the basis of currently available data.
- Therefore, in our consultation, we have proposed that in the short term NERL should meet the costs of services it has to provide and should work with all relevant stakeholders to design, consult and propose a new charging mechanism for new users – including space. NERL should then make a proposal for the CAA to consider and in due course implement new (additional) charging arrangements.

NR23 consultation



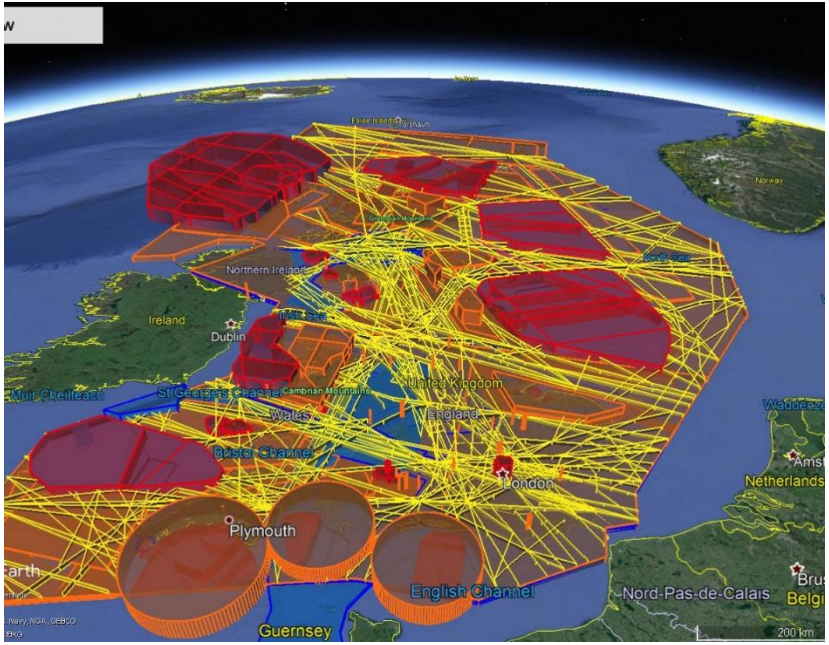
- Our proposal is that NERL will be unable to recover the efficient costs it has incurred in relation to new users until the CAA has implemented any new charging mechanism. Nevertheless, where NERL can set out a compelling case, we will consider supporting the use of commercial bilateral arrangements between NERL and new users on an interim basis.
- We strongly encourage stakeholders to consider the proposals set out in chapter 7 of CAP2394 and respond to the consultation, as an opportunity to influence the approach taken forward.
- Following consultation, we currently expect to make final proposals and decisions in spring 2023, but retroactively applicable from 1 Jan 2023.
- To the extent this aspect of our proposals remains broadly the same, we also strongly encourage stakeholders to fully engage with NERL on its development of new charging proposals.
- Our current proposal requires NERL to make a new charging mechanism proposals to the CAA by mid 2025. It is reasonable to expect that NERL may try to progress this activity more quickly.

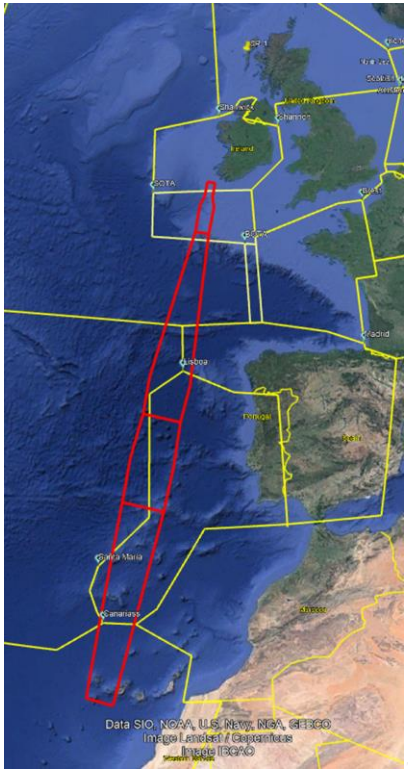
Should you wish to discuss this aspect of the NR23 initial proposals please contact matt.claydon@caa.co.uk If you wish to discuss the proposals more broadly, please contact stewart.carter@caa.co.uk

Airspace Change

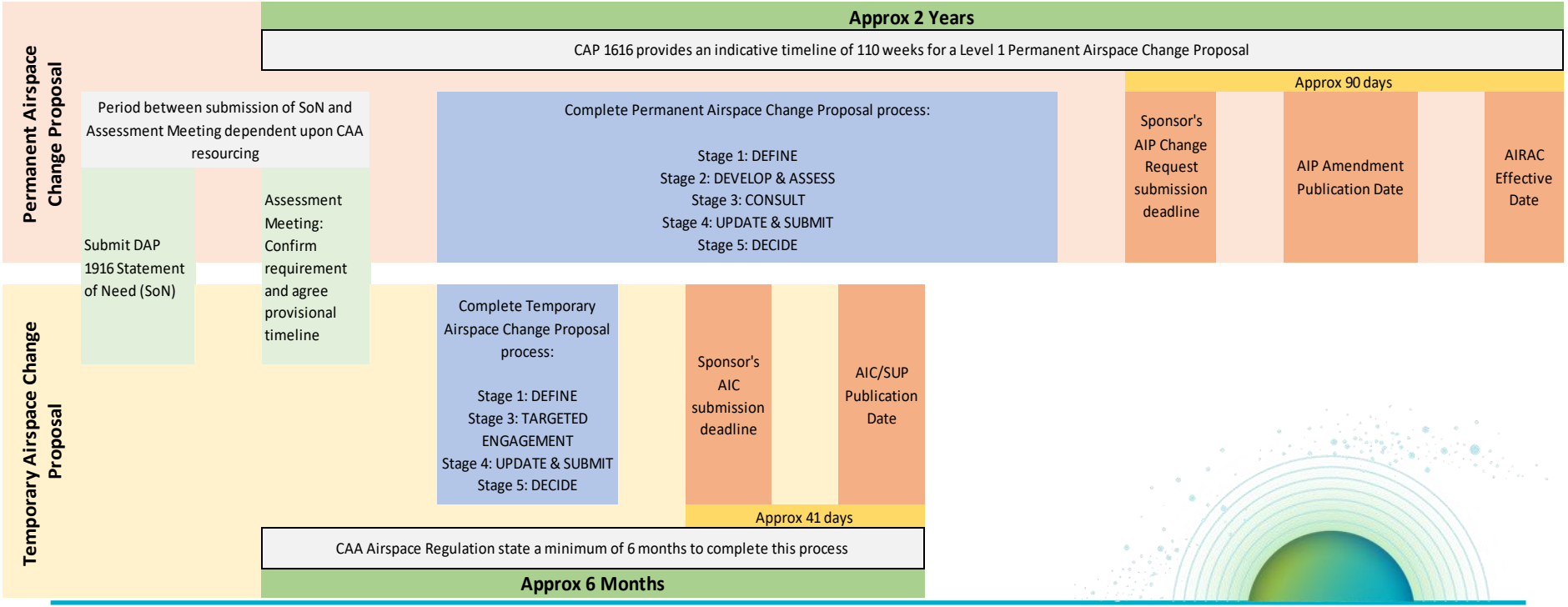
Al Burgess and Mark Jones
Technical Airspace Regulators

Why the CAP 1616 Airspace Change process





Why apply as early as possible



Permanent applications in process

ACP-2017-79: SaxaVord Spaceport

- In ‘Stage 2 – Develop & Assess’
- Stage 3 Gateway: December 2022

ACP-2021-12: Spaceport 1

- In ‘Stage 2 – Develop & Assess’
- Stage 2 Gateway: January 2023

ACP-2019-04: Space Hub Sutherland

- In ‘Stage 2 – Develop & Assess’
- Stage 2 Gateway: February 2023

Further details available on the CAA’s Airspace Change Portal: airspacechange.caa.co.uk

Temporary applications in process

ACP-2021-031: Virgin Orbit from Spaceport Cornwall

- Decision complete: Approved

ACP-2021-090: SaxaVord Spaceport

- In Decision stage
- Target AIC Publication: TBC

ACP-2021-058: HyImpulse at SaxaVord Spaceport

- In Decision stage
- Target AIC Publication: TBC

ACP-2021-037: Spaceport 1

- In Decision stage
- Target AIC Publication: TBC

Further details available on the CAA's Airspace Change Portal:

airspacechange.caa.co.uk

Key lessons so far

Aviation industry operates on a schedule

- Uncertain launch dates at range are a challenge

International impacts of launch adds complexity

- Translates to extended timelines to achieve integration

Analysing and articulating the impact is crucial

- Other airspace users and the network
- Environment (specific report requirements of CAP1616)

Everyone wants an LoA

- NATS
- MOD
- International agencies (ANSPs)
- Emergency services

CAP1616 review

Consultation to be published end of November, 12 week consultation period

Your opportunity to influence the airspace change process

- Should space-related applications be treated differently?
- Should space-related applications be prioritised?
- What elements of the process should be out of scope?

AOB

Thank you

caa.co.uk/space