UK Civil Aviation Authority

Consultation: Policy framework for new types of Vertical Take-Off and Landing (VTOL) aircraft

CAP 3186

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Executive Summary

The UK Government has set an objective to see piloted 'eVTOL' (electric Vertical Take-Off and Landing) operations in the UK from 2028. In September 2025 we published the CAA's eVTOL Delivery Model[i] that sets out our strategic approach to meeting that objective, and sets our own ambition*: by end-2028 to have in place a clear regulatory framework and operational systems that allow initial commercial passenger eVTOL flights in the UK.* Whilst it is possible to operate new types of VTOL aircraft today, this is limited primarily to testing and demonstration activities. Existing legislation does not always cover these new VTOL aircraft and their operations, which prevents their safe operation at scale in the UK. Regulatory change is therefore required to enable the UK Government and CAA's ambition to be delivered.

As set out in the eVTOL Delivery Model, the CAA, sponsored by the Department for Transport, is identifying the regulatory changes needed to accommodate the safe use of new types of VTOL aircraft in the UK, whilst supporting sector growth, innovation, decarbonisation and international alignment. This consultation seeks views from the public and VTOL industry stakeholders on the proposed legislative changes.

Our overarching policy approach is to apply existing regulatory frameworks to these new types of VTOL aircraft as much as possible, such that existing aviation safety standards would be equitably applied to these new aircraft. This means we can utilise an established, well-understood framework, and ensure equity with existing aviation, coherence across the aviation regulatory system and compatibility with international frameworks. We have proposed bespoke regulatory requirements where technical or operational characteristics mean that existing regulations cannot be applied – for example, on fuel or energy policy.

This consultation sets out the following policy proposals.

Definitions and thresholds (Chapter 2):

- Our overarching approach is to use existing UK or International Civil Aviation Organization (ICAO) definitions as far as is possible, aligning with our international commitments to ICAO and promoting harmonisation with other National Aviation Authorities (NAAs).
- We propose to classify these aircraft as either 'Powered-Lift' or 'Non-Conventional Helicopters', and we have put forward proposed definitions for these terms.
- We propose to treat these aircraft as Complex Motor-Powered Aircraft (CMPA) by default. However, we propose that the CAA will have some discretion to classify new types of VTOL aircraft as non-CMPA where appropriate.

Initial Airworthiness (Chapter 3):

- We propose to apply the current initial airworthiness framework and requirements to new types of VTOL aircraft, as contained in UK Regulation (EU) 748/2012, only amending the regulations where necessary. This will require amending the scope and definitions of current legislation to include Powered-Lift and Non-Conventional Helicopters, and amending the framework for standard changes and repairs.

Continuing Airworthiness (Chapter 4):

- We propose to apply the current continuing airworthiness framework and requirements to new types of VTOL aircraft, as contained in UK Regulation (EU) 1321/2014, only amending the regulations where necessary. This will require amending the scope and definitions of current legislation to include Powered-Lift and Non-Conventional Helicopters, and amending the requirements relating to organisation approval certificates, airworthiness review processes, pilot owner maintenance, complex maintenance tasks and aircraft maintenance programmes.

Pilot Licensing (Chapter 5):

- We propose to use the existing licensing framework in UK Regulation (EU) 1178/2011, with appropriate amendments, to deliver a licensing pathway for the operation and integration of new types of VTOL aircraft into the UK aviation sector. We propose to enable a pilot licensing pathway for commercial and non-commercial operations using the principles of existing licensing requirements for Powered-Lift. We propose to use the basic framework of the Helicopter rating for Non-Conventional Helicopters.

Flight Operations (Chapter 6):

- We propose to equitably apply existing flight operations requirements, as included in UK Regulation (EU) 965/2012, as far as possible. We propose to use the principles of existing Helicopter requirements for Non-Conventional Helicopters and the principles of either Helicopter or Aeroplane requirements, or a combination of both as applicable, for Powered-Lift.
- We propose to make more material updates to flight time limitations and fuel policy requirements to reflect the different concept of operations of Powered-Lift. As part of this process, we will also review the Helicopter regulations in regard to the operation of Non-Conventional Helicopters.

Aerodromes (Chapter 7):

- We propose to require all Powered-Lift and Non-Conventional Helicopters to take off from or land at an ‘aerodrome’ or an ‘operating site’, as is the case for helicopters and fixed-wing aircraft today.

- In most instances, we propose no changes to the existing regulatory requirements for aerodromes where Powered-Lift are taking off or landing. Where required, we will create bespoke requirements for Powered-Lift within the aerodrome regulatory structure.
- We propose to maintain a pathway for non-commercial operations, including General Aviation, to utilise unlicensed operating sites. We also propose to allow commercial operations to utilise unlicensed operating sites, where allowed within their Air Operators Certificate approvals. This aims to reduce the regulatory burden on charter type operators, compared to a regulatory certification-only system.

Other Issues (Chapter 8):

- Cyber security requirements are already included as part of Means of Compliance for aircraft certification requirements in Special Condition UK.SC.VTOL Issue 2.
- We are still considering whether operators of new types of VTOL aircraft would fall in scope of Information Security Management System (ISMS) regulation, currently being progressed as a separate rulemaking task[ii].
- We propose that existing Air Traffic Management (ATM) regulations and policy, including relevant provisions within UK Regulation (EU) 923/2012, UK Regulation (EU) 2017/373 and the Air Navigation Order 2016, can be applied to operations of new types of VTOL aircraft without change.

Collectively, these policy proposals aim to deliver a coherent regulatory framework for new types of VTOL aircraft that delivers safety for public and passengers, whilst supporting growth and innovation of this emerging sector.

The CAA is seeking responses to this consultation by 29th January 2026. Following this consultation, the CAA will consider all consultation responses and publish our updated recommendations in a Consultation Reply Document. We expect that further consultation may be required to gain feedback on further policy developments and proposed changes to technical legislative text. After these consultations have concluded, we will provide our final opinion and instructions to the Department for Transport, who will consider whether to progress with our proposals in a statutory instrument.

Chapter 1
Introduction

Context

The emergence of new types of VTOL (Vertical Take-Off and Landing) aircraft and associated technologies has the potential to broaden and enhance the reach of civil aviation. The UK Government has set an ambition to see piloted ‘eVTOL’ operations in the UK from 2028 and has established the Future of Flight programme to help deliver this ambition.

Whilst it is possible to operate new types of VTOL aircraft today for testing and demonstration purposes, existing legislation does not always cover these new aircraft and their operations. The CAA, sponsored by the Department for Transport, is identifying the proposed regulatory changes needed to accommodate the safe use of these new types of VTOL aircraft in the UK. The purpose of this consultation is to gather views from the public and industry on our initial policy proposals.

We are aware of the differences across the aviation industry in the use of terms related to these new types of aircraft. For the purpose of this consultation, we use the term *new types of VTOL aircraft* to describe the types of aircraft we expect to be impacted by these proposals, rather than *eVTOL*. This recognises that not all aircraft impacted by our proposals will be electric-powered. Our current thinking on potential aircraft classifications and definitions we intend to use in the regulation are set out in in Chapter 2 of the document.

Our objectives

The CAA’s eVTOL Delivery Model (CAP 3169) set out our ambition to implement the regulatory framework and operational systems required to enable initial commercial passenger operations from the end of 2028. In delivery of this ambition, we aim to include regulatory changes required to enable carrying fare paying passengers or cargo, emergency medical services, and other commercial aviation activities, day and night, in most weather conditions. Whilst we expect other innovative use cases to emerge beyond the 2030s, such as remotely piloted or autonomous aircraft, these are not the focus of the current consultation.

Our proposals have been developed in support of CAA's mission: 'protecting people and enabling aerospace'. **Our primary objective is safety** – specifically, to ensure public and passenger safety through establishing proportionate regulations that allow safe flights and safe integration within the wider aviation ecosystem.

In developing our proposals, we have also had regard to the following secondary objectives:

- **Sector Growth:** In support of the CAA's Growth Duty contained in section 108 of the Deregulation Act 2015, develop a regulatory framework that can enable aerospace and the growth of the VTOL sector, promoting investment and job creation in the UK. Support the emerging industry operating across the ecosystem – such as original equipment manufacturers (OEMs), operators and aerodrome operators, amongst others.
- **Support for UK's Net Zero target:** Enable the development and deployment of electric, hybrid-electric, and hydrogen VTOL aircraft that may contribute to the reduction of transport-related carbon emissions.
- **Innovation:** Provide policy recommendations that allow and accommodate innovation in technology, whilst preserving safety.
- **International compatibility:** Ensure compliance with any published ICAO Standards and Recommended Practices. Promote compatibility with other international frameworks, to ensure we remain harmonised with the international system where it is in the UK's interest to do so.

The regulatory framework

Existing regulations can currently support the testing and demonstration of new types of VTOL aircraft. E Conditions provides an established framework for a limited range of low-risk development, pre-certification, testing and demonstration flying of certain experimental aircraft. In addition, the Permit to Fly (PtF) framework can enable a broader range of aircraft to fly, subject to conditions and limitations set out in the associated Flight Conditions (FC).

For aircraft to qualify for a Certificate of Airworthiness, they will require UK Type Certification or validation of a Foreign State certification. The CAA have published a UK-version of EASA's SC-VTOL, together with the associated Means of Compliance, as the intended UK certification basis for new types of VTOL aircraft.

The regulatory frameworks needed to enable commercial operations at scale – across airworthiness, flight operations, pilot licensing, and aerodromes – are not yet in place. Our proposed overarching policy approach is to apply existing regulatory frameworks to these new types of VTOL aircraft as far as possible. This means we can utilise an established, well-understood framework and ensure equity with existing aviation, coherence across the aviation regulatory system and compatibility with international frameworks. We have proposed bespoke regulatory requirements where technical or operational characteristics mean that existing regulations cannot be applied – for example, on fuel or energy policy.

Some of the relevant regulations that could require amending to implement the regulatory framework for VTOL in the UK include, but are not limited to:

- Air Navigation Order 2016 (S.I. 2016/765)

- UK Regulation (EU) 2018/1139 – i.e. the Basic Regulation
- UK Regulation (EU) 748/2012 – i.e. the Initial Airworthiness and Environmental Certification Regulation
- UK Regulation (EU) 2015/640 – i.e. the Additional Airworthiness Regulation
- UK Regulation (EU) 1321/2014 – i.e. the Continuing Airworthiness Regulation
- UK Regulation (EU) No 1178/2011 – i.e. the Aircrew Regulation
- UK Regulation (EU) No 139/2014 – i.e. the Aerodromes Regulation
- UK Regulation (EU) 965/2012 – i.e. the Air Operations Regulation

Any changes to these regulations will need to be coordinated with other interdependent rulemaking tasks and consultations. These include:

- **Heliports certification requirements** – in line with ICAO State Letters pertaining to Annex 14 and Annex 19, introducing heliport certification and Safety Management System (SMS) requirements, improving regulatory oversight, and harmonising requirements with aerodromes and future vertiports.
- **Changes to UK Regulation (EU) No 1321/2014 Part 66** - including the addition of the electric powerplant category to the engineer's licensing requirement.
- **Implementation of UK Information Security Management System** – introducing regulations relating to management of information security.

In addition, the CAA and DfT are working together to understand the aviation security considerations arising from VTOL aircraft. This includes how existing aviation security regulations may apply and whether changes may be needed in the future as technology and use-cases develop, with specific consideration for aerodromes.

Other relevant work

The CAA has adopted UK SC.VTOL Issue 2[iii] to enable the certification of new types of VTOL aircraft. In addition, in the absence of any ICAO noise Standards for such aircraft, the CAA intends to require certified VTOL aircraft to comply with the essential requirements for environmental compatibility prescribed in Annex III to the Basic Regulation (UK Regulation (EU) 2018/1139) using the related Environmental Protection Technical Specifications already published by EASA as Means of Compliance[iv].

This consultation builds on several prior publications issued by the CAA, either solely or jointly. These include:

- **Advanced Air Mobility: eVTOL Delivery Model (September 2025)** – a CAA publication describing the objectives, delivery principles, emerging policy positions and future activities needed to support the implementation of eVTOL regulation in the UK.[v]
- **The Roadmap for Advanced Air Mobility Aircraft Type Certification (June 2025)** – a joint publication with several other National Aviation Authorities, describing the activities needed to deliver harmonization of aircraft certification.[vi]
- **Future of Flight Action Plan (March 2024) –** a joint publication by DfT, the CAA and Future of Flight Industry Group setting out the previous government's strategic roadmap for drones and Advanced Air Mobility.[vii]
- **Policy statements (Various)** – CAA documents explaining prior policy positions across airworthiness, pilot licensing and flight operations at the time of publication.[viii]

The policy proposals included in this consultation have also been informed by a number of research projects commissioned or conducted by the CAA. These include:

- **Systems Theoretic Process Analysis (STPA) based Safety Analysis of eVTOL Operations (August 2025)** – A systems-thinking based safety analysis of risks and mitigations needed for eVTOL operations, completed in conjunction with WMG, University of Warwick and the eVTOL Safety Leadership Group [ix]
- **Battery research (October 2025)** – An ongoing assessment of the risks associated with Li-Ion batteries in eVTOL aircrafts, and what the CAA might do to mitigate these risks.
- **Research Assessment of Transitory Helicopter Downwash (RATHD) project (April 2025)** – Verification and validation of downwash simulations of eVTOL aircraft.[x]
- **Noise measurements from eVTOL aircraft: A review of available data (June 2025)** – A review of literature on noise emissions from eVTOL aircraft.[xi]

In addition, our proposals are being informed by industry engagement conducted through stakeholder working groups in place for flight operations, pilot licensing and heliports, as well as continued engagement with the ADS Advanced Air Mobility Special Interest Group.

Document summary

This consultation document takes the following structure:

- **Chapter 2 – Definitions and Thresholds**: This section includes proposals to use existing UK or ICAO definitions as far as is possible, and to classify aircraft that fall under our definition of Powered-Lift and Non-Conventional Helicopters as Complex Motor-Powered Aircraft by default.

- **Chapter 3 – Initial Airworthiness:** This section describes our proposed changes to UK Regulation (EU) 748/2012, to include VTOL aircraft in scope of existing initial airworthiness requirements.
- **Chapter 4 – Continuing Airworthiness**: This section describes our proposed changes to UK Regulation (EU) 1321/2014, to include VTOL aircraft in scope of existing continuing airworthiness requirements, and to determine any new specific requirements needed for VTOL aircraft maintenance.
- **Chapter 5 – Pilot Licensing**: This section outlines how we propose to deliver a pilot licensing pathway to enable commercial and private pilot licence holders to fly new types of VTOL aircraft safely.
- **Chapter 6 – Flight Operations**: This section describes how we propose to apply existing requirements from UK Regulation (EU) 965/2012, for Aeroplanes and Helicopters or a combination of both, as is appropriate to the specific type of aircraft.
- **Chapter 7 – Aerodromes:** This section includes our proposals to apply regulatory requirements for aerodromes, currently under review, to new types of VTOL.
- **Chapter 8 – Other Issues:** This section sets out how cyber security requirements could impact new types of VTOL aircraft and their operations, and how existing airspace requirements will be applied.

How to respond

The CAA is seeking feedback from both the general public and stakeholders across the VTOL sector. This includes aircraft designers, aircraft manufacturers, aviation technology providers, maintenance organisations, continuing airworthiness management organisations (CAMOs), maintenance training organisations, flight operators, pilots, pilot training organisations, aerodrome operators, ground handling service providers, air navigation service providers, and academics, amongst others.

Responses must be provided by 29th January 2026. Responses should be provided on Citizen Space, using the link provided on the CAA website.

Following the close of the consultation period, the CAA will consider all consultation responses and publish our updated recommendations in a Consultation Reply Document. We expect that further consultation may be required to gain feedback on further policy and proposed changes to technical legislative text. When these consultations have concluded, we will provide our final opinion and instructions to Department for Transport, who will consider whether to progress with our proposals in a statutory instrument.

Chapter 2

Definitions and Thresholds

Definitions and naming convention

Definitions play an important role in determining the applicability of regulatory requirements, providing coherence across the regulatory framework and ensuring compliance with relevant ICAO standards. Our overarching approach is to use existing UK or ICAO definitions as far as is possible, aligning with our international commitments to ICAO and promoting harmonisation with other NAAs.

To retain the structure of Part 1 of Schedule 4 to the Air Navigation Order 2016 ("the ANO") and utilise existing classifications, our proposal is to update the existing UK definition of 'Powered-lift aircraft'[1] so that this captures most new types of VTOL aircraft. This updated definition will align with the ICAO definition from Annex 1[2]: *'a heavier-than-air aircraft capable of vertical take-off, vertical landing, and low-speed flight, which depends principally on engine-driven lift devices or engine thrust for the lift during these flight regimes and on non-rotating aerofoil(s) for lift during horizontal flight'.* The classification of aircraft in accordance with Part 1 of Schedule 4 determines which provisions elsewhere in the regulatory framework will apply in relation to that aircraft.

This definition captures a wide range of Powered-Lift and operations, both already known and future designs. It will cover all Powered-Lift that are capable of take-off and landing using only 'engine' thrust, and are capable of wing-borne flight, irrespective of the fuel or propulsion type being used. Our view is that this definition is both compatible with EASA's PART-IAM[3] and the FAA Powered-Lift regulations, and compliant with ICAO Annex 1, creating the most flexible and adaptive framework. In addition, using the existing aircraft classification set out in Part 1 of Schedule 4 to the ANO will support the use of established rulesets already in place.

New types of VTOL without a wing will be out of scope of the Powered-Lift classification but will fit within the existing domestic and ICAO definition of Helicopter. We propose that, when applying the classification scheme in Part 1 of Schedule 4, they should be classed as Helicopters and subject to the regulatory rulesets that apply to Helicopters.

Where these new types of helicopters have no autorotation capability, we anticipate that they will need to be subject to specific requirements to ensure that they are operated to at least the same level of safety as existing helicopter types. We propose to treat this type of

[1] See UK Regulation (EU) No 1178/2011, Annex 1 PART-FCL, FCL.010 Definitions: "Powered-lift aircraft" means any aircraft deriving vertical lift and in flight propulsion/lift from variable geometry rotors or engines/propulsive devices attached to or contained within the fuselage or wings

[2] All references to ICAO Annexes hereonin are to Annexes to the 1944 Convention on International Civil Aviation (the Chicago Convention)

[3] See Commission Implementing Regulation (EU) No 965/2012 Annex IX

aircraft as a 'Non-Conventional Helicopter', defined as '*a helicopter that is not capable of autorotation*'. This will ensure the appropriate safety regulations can be applied.

As technology and designs develop, there is a risk that statutory definitions may not be capable of being applied to new aircraft, and that definitions created today may not capture all new technologies and novel or unique aircraft designs. This risks creating barriers for new entrants by making it unclear which definition applies, or delays if the regulations need amending. To mitigate this risk, we propose that CAA should have a discretion to determine which of the classifications in Part 1 of Schedule 4 to the ANO is the most appropriate to apply to an aircraft that does not fit clearly within any existing statutory definition. This will be considered in conversation with the applicant, taking all relevant characteristics into account.

A diagram to illustrate the proposed classification framework is provided in Annex 1.

Question 1: *Do you agree or disagree with our proposals regarding definitions and naming convention? Please explain your answer.*

Complex Motor-Powered Aircraft (CMPA)

Complex Motor-Powered Aircraft (CMPA) is a regulatory classification that determines whether an aircraft is subject to certain flight operations and continuing airworthiness requirements. Specifically:

- In flight operations regulations, being classified as CMPA determines whether an aircraft is subject to Commercial Air Transport (CAT) large Aeroplane/Helicopter requirements, whether an aircraft operates in Part-NCC (non-commercial operations with CMPA) or Part-NCO (non-commercial operations with non-CMPA), and which provisions of Part-SPO (Specialised Operations) are applied. It also impacts crew training/qualification rules, which are set out in the flight crew licensing regulations.
- In continuing airworthiness regulations, being classified as CMPA determines whether maintenance must be performed under Part-145 organisations, whether an approved Continuing Airworthiness Management Organisation (CAMO) is required, and whether maintenance programmes need competent authority approval.

At present, an aircraft is classified as CMPA if it is an Aeroplane or Helicopter that meets certain mass, passenger, crew, or propulsion criteria, or if it is a tilt-rotor aircraft regardless of weight, crew or passenger numbers[xii].

We propose to start from the presumption that all Powered-Lift and Non-Conventional Helicopters, as defined in the prior section, should be classified as CMPA.

- For Powered-Lift, this is a continuation of the existing policy, expanding the scope beyond just Powered-Lift using tilt-rotors to include any type of Powered-Lift and propulsion. While some of the new types of VTOL will not use tilt-rotors, they still share the capability of being able to take off and land vertically and fly on a wing. We consider it appropriate for these aircraft to therefore be treated in the same manner as Powered-Lift using tilt-rotors.
- For Non-Conventional Helicopters, we have considered the lack of or diminished capability to autorotate in case of an emergency. Classifying these aircraft as CMPA by default ensures both operational oversight and maintenance standards are aligned with the complexity and safety-critical nature of these aircraft.

We also consider that the default position that all Powered-Lift and Non-Conventional Helicopter are CMPA may not be appropriate for some new types of VTOL aircraft, and that our views on this may evolve as we gain more data and evidence on the enduring performance of aircraft.

On that basis, we propose that:

- For some Powered-Lift or Non-Conventional Helicopters, the CAA should have a discretion to decide whether the default position that they are CMPA should be disapplied, having regard to criteria relating to the aircraft and its anticipated operations, and
- If the CAA exercises that discretion and the aircraft is determined to be non-CMPA, the CAA should be able to apply conditions relating to its maintenance and operations, while we are building an evidence base in respect of the operations of these novel aircraft.

We anticipate that the limits and the exercise of the discretion would be subject to thresholds and criteria that we propose to develop in more detail through further engagement with stakeholders.

This proposal intends to ensure our overall approach to flight operations and airworthiness requirements provides the appropriate level of safety, whilst providing proportionate regulation of industry as technology evolves.

Question 2*: Do you agree or disagree with our proposals regarding CMPA? Please explain your answer.*

Chapter 3
Initial Airworthiness

The requirements for initial airworthiness are laid out in Annex I to UK Regulation (EU) 748/2012, referred to as 'Part 21'[xiii]. This includes the requirements that relate to Design and Production organisation approvals and the associated Subparts that support these functions.

The current initial airworthiness framework and requirements are well established, known, and suitable for new types of VTOL aircraft. We therefore intend to use the current airworthiness framework as set out in Part 21, and only amend the regulations where necessary to include Powered-Lift and Non-Conventional Helicopters. This will ensure new VTOL aircraft will be subject to the same high standard of safety oversight that currently applies to existing Part 21 aircraft.

Scope and definitions

We propose to amend the scope and definitions of Part 21 to include Powered-Lift and Non-Conventional Helicopters. This will ensure that existing requirements will apply to these new types of aircraft.

Standard changes and repairs

We propose to amend the framework for standard changes and repairs so that they can be applied to Powered-Lift and Non-Conventional Helicopters. This will enable the possible use of Certification Specification 'CS-STAN' for standard changes and repairs on the VTOL aircraft types that have been classified as non-CMPA following application of the CAA's discretion, as discussed in Chapter 2.

Question 3*: Do you agree or disagree with our proposals regarding initial airworthiness? Please explain your answer.*

Chapter 4

Continuing Airworthiness

The requirements for continuing airworthiness are laid out in UK Regulation (EU) 1321/2014[xiv]. This includes the maintenance organisation (Annex II, Part 145) and continuing airworthiness management organisation (Annex Vc, Part CAMO) approvals, and the associated Parts that support these functions. In addition, amendments will be necessary to Part ML (Annex Vb) and Part CAO (Annex Vd) to enable Powered-Lift and Non-Conventional Helicopters to operate as General Aviation aircraft where they have been classified as non-CMPA following application of CAA's discretion, as discussed in Chapter 2.

The current continuing airworthiness framework and requirements are well established and are suitable for new types of VTOL aircraft. We therefore intend to use the current continuing airworthiness framework and requirements, and only amend the regulations where necessary to include Powered-Lift and Non-Conventional Helicopters. This approach will ensure new VTOL aircraft will be subject to the same high maintenance standards with the same level of oversight as applies to existing aircraft.

Scope and definitions

We propose to bring Powered-Lift and Non-Conventional Helicopters within the scope of the Continuing Airworthiness Regulation by amending the scope and definitions provisions as needed. This will ensure that existing continuing airworthiness requirements apply to these new types of aircraft. As described below, we propose to make adjustments where necessary within the regulations for Powered-Lift and Non-Conventional Helicopters that may be classified as non-CMPA, following application of the CAA's discretion discussed in Chapter 2.

Organisation approval certificates

We propose to include Powered-Lift and Non-Conventional Helicopters in the organisation approval certificates for maintenance and aircraft continuing airworthiness management organisations.

Airworthiness review process

We propose to include Powered-Lift and Non-Conventional Helicopters into the airworthiness review process.

Pilot owner maintenance

For aircraft classified as non-CMPA, we will propose additional pilot owner maintenance requirements applicable to new types of VTOL aircraft.

Complex maintenance tasks

For General Aviation aircraft (i.e. non-CMPA Powered-Lift or Non-Conventional Helicopters), we will propose to specify some tasks as complex maintenance tasks. These will be out of scope for pilot owner maintenance, or for an independent certifying staff to issue the CRS (Certificate of Release to Service).

Aircraft maintenance programme requirements

For General Aviation aircraft (i.e. non-CMPA Powered-Lift or Non-Conventional Helicopters), we propose to introduce the aircraft maintenance programme requirements for these aircraft within Part ML, which we believe is the appropriate place for non-CMPA Powered-Lift and Non-Conventional Helicopters.

***Question 4**: Do you agree or disagree with our proposals regarding continuing airworthiness? Please explain your answer.*

Chapter 5
Pilot Licensing

The requirements for personnel licensing are laid out in implementing rule UK Regulation (EU) No 1178/2011[xv] referred to as the Aircrew Regulation, subject to UK Regulation 2018/1139, referred to as the UK Basic Regulation.

UK personnel licensing requirements under this legislation are ICAO compliant. This is necessary to ensure licences are accepted internationally.

We propose to use the principles of the existing licensing framework with required amendments to the Aircrew Regulation as appropriate, to deliver a licensing pathway for the operation and integration of Powered-Lift and Non-Conventional Helicopters into the UK aviation sector.

Our approach

The Aircrew Regulation has evolved over time with amendments introduced to address potential risks or adverse events, with the primary objective being safety.

Unless otherwise determined in the operational suitability data, the existing experience requirements and prerequisites for the issue of ‘Type Ratings-Helicopter' provide a suitable licensing platform for aircraft we will define as Non-Conventional Helicopters, and we propose to use this existing framework. This will remain an area subject to review as OEMs of such aircraft provide additional information to the CAA.

Unless otherwise determined in the operational suitability data, the principles of the experience requirements and prerequisites for the issue of ‘Type Ratings-Powered Lift’ are proposed to enable a personnel licensing pathway for aircraft we will define as Powered-Lift, with provision in the Aircrew Regulation in respect of the following prerequisites:

- Prerequisite for a certificate of completion of a Multi-crew cooperation (MCC) course will apply to aircraft certified for multi-pilot operations. We are aware that most platforms are currently being designed for single pilot operations. New types of VTOL aircraft certified for single-pilot operations will not be subject to this MCC requirement.
- Prerequisite for Instrument Rating (IR) will apply to operations under IFR, subject to the provisions of FCL.600 IR. Operations under Visual Flight Rules (VFR) will not be subject to this requirement.

We propose to introduce a new provision to include a pathway for Private Pilot Licence (PPL) holders for the issue of ‘Type Ratings-Powered Lift’. We are supportive in principle and propose to review the theoretical knowledge requirements, flight experience hours and cross crediting appropriate experience with particular emphasis resting on the OEMs

providing data relevant to the aircraft within their Operational Suitability Data-Flight Crew (OSD-FC).

Note: night ratings will be determined by the original licence category. Privileges must be held to operate at night.

Pilot Training

Certification Specifications for Operational Suitability Data—Flight Crew Data (CS-FCD) enables the determination of the specific type rating requirements for new aircraft types. It provides a standardised data-driven process to ensure pilots receive the appropriate training for a particular aircraft type, which is then reflected on their license.

As OEMs deliver Flight Crew Data relevant to the type rating, training programmes, including training areas of special emphasis, credit for training in a device or simulator, differences training and crewing requirements, further consideration will be given to the following areas:

- **Theoretical Knowledge** – This will be informed by the OEM within the OSD-FC.
- **Flight Simulation Training Device (FSTD)** – This is an area that will be considered as a consequence of the proposed innovation and training methodology, with regard to single or dual control systems, simulator based training and initial familiarisation flights, and use of other training devices (OTD).
- **Licensing Requirements -** We will consider whether the required standard will be hours/competency based and the amount of time spent within a simulator, and practical elements on the aircraft. The CAA will be looking at the proficiency of the individual to operate these aircraft types within the skills test
- **Approved Training Organisations (ATO)** – Amendments are not currently proposed to training environments and course provision requirements. This area is likely to be unchanged where it remains suitable for purpose. Training courses are normally the output of the training outcomes stated within the OSD-FC, informed by training that test pilots and other relevant persons have undertaken while involved with the certification of the aircraft. Information to layout the basis of the syllabus for both theoretical and practical training can only be obtained towards the end of the certification process.
- **Instructors** – due to the wide range of types and number of variations in characteristics among new types of VTOL aircraft, this is an area which will be reviewed on submission by the OEM of their OSD-FC. The Instructors within the OEM will be preparing the outline of the learning objectives, both theoretical and practical. Provision for the issue of a certificate granting privileges for flight instruction and examination exists where special conditions arise and compliance with the existing requirements are not possible, as this will be a new aircraft within the United Kingdom.

Whilst we have outlined our views, we are working with limited data at this time. As data becomes more widely available the CAA recognises there may be further considerations to address.

***Question 5**: Do you agree or disagree with our proposals regarding a personnel licensing pathway for commercial licence holders (CPL/ATPL) to secure a type rating to fly new types of VTOL aircraft? Please explain your answer.*

***Question 6:** Do you agree or disagree with our proposals regarding the introduction of a personnel licensing pathway for private pilot licence holders (PPL) to secure a type rating to fly new types of VTOL aircraft non-commercially? Please explain your answer.*

Chapter 6
Flight Operations

Application of existing flight operations requirements

The requirements for flight operations are laid out in the UK Regulation (EU) 965/2012[xvi]. With the introduction of Powered-Lift and Non-Conventional Helicopter classifications, the proposal is to make use of existing definitions in ICAO standards and recommended practices (SARPs) and UK aviation regulations, classifications and principles as far as practical. This means using the existing aircraft classification contained in Air Navigation Order 2016 Schedule 4 and using the principles contained in the ICAO Doc 10103; adjusting the principles only where necessary to suit the operations of these new aircraft types. Applying the principles of existing rules, whenever practical, will expedite our work and help ensure that the new entrants are treated in an equitable fashion with the existing aviation sector.

New regulations will be based be on the core capability of the aircraft, whether it has characteristics of both an Aeroplane and a Helicopter, or only those of a Helicopter. The former will be treated as Powered-Lift and we will apply Aeroplane rules, Helicopter rules or a combination of the two, depending on the mode of operation. The latter fit the definition of a Helicopter and will be treated as such. The requirements of existing performance classes will be equitably applied depending on the mode of operation when taking off and landing. We will also consider the inability of some of the aircraft to glide and/or autorotate when setting requirements, and proposed changes will account for this. In all instances we will work to ensure that all aircraft are treated equitably.

We will include regulatory changes required to enable carrying fare-paying passengers or cargo, emergency medical services, and other commercial aviation activities, day and night, in most weather conditions where the operation meets principles of the existing requirements equitably applied. Our proposed approach will be compatible with other NAAs and ICAO; despite some differences in our approach, the outcomes will be very similar. In parallel, we will continue to work with ICAO, other regulators, EUROCAE and other stakeholders to further develop the international aviation regime.

Flight Time Limitations

In light of a notably different proposed concept of operations using Powered-Lift - namely the shorter and more numerous flights and the fact that most are single-pilot operations - we will review CAP 371 on Flight Time Limitations. This will establish if there are potential flight and duty time limits that may be more appropriate to these intended operations. As part of this process we will also review the Helicopter regulations in regard to the operation of Non-Conventional Helicopters.

Fuel policy

We propose to update the new All-Weather Operations (AWO) and fuel management scheme requirements (effective October 2025) to equitably include new aircraft types and fuel sources, subject to statistical analysis and the CAA's approval.

We also acknowledge developments around new types of fuels. We are proposing new rules for refuelling with new fuel types such as hydrogen. Alongside that, we are proposing new rules for recharging, discharging and battery swapping for battery electric aircraft.

While battery technology has made significant strides, and we acknowledge the efforts put in by the industry to mitigate various risks, we propose not to permit recharging of batteries with passengers on board, unless the operator submits, and has approved, a plan to mitigate the specific risks - as is the case for refuelling with existing fuel types, such as Jet A.

Non-commercial flights

We will adapt the rules for non-commercial flights (Part-NCC, Part-NCO and non-commercial SPO) to allow operators to carry out non-commercial flights with these new types just as they do with existing aircraft types.

***Question 7**: Do you agree or disagree with our proposed changes regarding flight operations regulations? Please explain your answer.*

Chapter 7
Aerodromes

Overall approach

We have examined the risk profile and opportunities of new types of VTOL, which has led us to determine that harmonising aerodrome requirements with existing air users will bring the highest benefits and lowest costs to industry, whilst maintaining safety. We propose to require all Powered-Lift and Non-Conventional Helicopters to either take off from or land at an 'aerodrome' or an 'operating site', as is the case for helicopters and fixed-wing aircraft today[4].

In most instances, requirements for aerodromes accommodating new types of VTOL aircraft will remain unchanged. Where required, we will create bespoke requirements for Powered-Lift within the aerodrome regulatory structure. We are already progressing rulemaking activity to allow for reform of heliport regulation, which will align with the CAA's goals for new types of VTOL aircraft. This includes scalable heliport certification systems and more flexible aerodrome design options.

We intend to maintain a pathway for non-commercial operations, including General Aviation, to utilise unlicensed operating sites. We also intend to allow commercial operations to utilise unlicensed operating sites where allowed within their Air Operators Certificate approvals.

Aerodrome certification and oversight

The CAA is separately developing recommendations on proposed amendments to the heliport regulatory framework, in particular the Air Navigation Order and Basic Regulation. We anticipate these changes will achieve these aims:

- Harmonise Helicopter, Powered-Lift and Non-Conventional Helicopter certification requirements for aerodromes
- Reflect the capabilities of new types of VTOL aircraft, to provide infrastructure and operational regulation and guidance for vertical, short takeoff or landing and conventional takeoff or landing

[4] 'aerodrome' means a defined area (including any buildings, installations and equipment) on land or water or on a fixed, fixed off-shore or floating structure intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft;

'operating site' means a site, other than an aerodrome, selected by the operator or pilot-in-command or commander for landing, take-off and/or external load operations;

- Require that aircraft performing commercial air transport activities are bound to certificated aerodromes, or subject to flight operations department approvals or exemptions. For all types of aircraft performing scheduled passenger services, a certified aerodrome will be required, as it is today.
- Deliver proportional risk based oversight for new types of VTOL aircraft activities at aerodromes
- Deliver a scalable, achievable and expandable certification and oversight system to facilitate growth and reduce burden of regulation
- Provide the option to have a regulatory compliance self-declaration system for small and non-complex aerodromes with a scaled level of oversight.

A full public consultation document will be available outlining our proposals pertaining to heliports, which will be mirrored for new types of VTOL aircraft. Engagement with the heliport consultation will dictate ongoing next steps for certification of VTOL activities at aerodromes.

Aerodrome data

The provision of aerodrome data is proposed to align with existing Aeronautical Information Management policy and be presented in the Aeronautical Information Publication (AIP). The type and amount of information will be presented in the same way as for existing aerodromes, or heliports as today depending on the intended flight regime of the aerodrome.

It is proposed that any aerodrome with VTOL aircraft operations that is published in the AIP has the suitable data assurance processes, and a suitable aerodrome survey. Should autonomy be introduced, an enhanced level of data provision will be required.

Physical characteristics

We do not anticipate having to change requirements set out in regulation for aerodrome standards. However additional guidance may be drafted, especially in regards to high intensity operations, wake turbulence separation, and the safety of third parties from Downwash and Outwash. We are researching additional Acceptable Means of Compliance and Guidance for novel aerodrome designs, such as the inclusion of moving TLOF (Touch-down and Lift-off) platforms and virtual FATO (Final Approach and Take-off) options.

Obstacle environment

Obstacle Limitation Surfaces (OLS) and helicopter slopes will remain in use, noting that both are due to receive a regulatory update prior to the completion of this rulemaking process. We propose to have provisions for both performance-based OLS, as well as a more flexible OLS provision for Powered-Lift or Non Conventional Helicopters when performing vertical landings. This will provide more final approach and post departure turn options than are currently available.

Visual aids and lighting

Visual aids and lighting requirements are proposed to align with current aerodromes, with minimal changes for piloted Powered-Lift. We have determined this as both the safest option, and lowest cost for industry. Additional guidance will be provided for more scenarios than in current regulation, such as off airfield operating sites or complex aerodrome designs.

Safety Management System elements

An active Safety Management System (SMS) and aerodrome manual is proposed to be required for certified or licensed aerodromes. As with the aerodrome certification, the SMS is to be scaled based on the complexity and type of operations undertaken at the aerodrome.

Ground Handling

We propose to align with aerodrome Ground Handling policy currently under development[xvii]. These services may be provided (and thus responsibility held) by the aircraft operator itself (i.e. self-handling), by the aerodrome operator, or by independent ground handling companies.

Emergency Procedures and Rescue and Firefighting Services

Current policy only accounts for aircraft fires with internal combustion engines using hydrocarbon fuel. The same principles will remain for new types of VTOL aircraft where the rescue of persons on board, and persons or property in the affected area takes primacy over the protection of the aircraft. Additional guidance will be published for the management of battery fires post thermal runaway.

***Question 8**: Do you agree or disagree with our proposals to update the regulatory framework for Aerodromes? Please explain your answer*

Chapter 8
Other Issues

Cyber Security

Cyber security is considered a fundamental part of ensuring safe aircraft operations, primarily due to the technology involved in both the aircraft itself as well as the ground supporting infrastructure. New types of VTOL aircraft could present an increased cyber-attack surface due to widespread use of technology and connectivity; this is why the regulations set out to achieve a balance of maintaining safety margins while allowing innovation to take place.

The reliance on technology and novel systems applicable to new types of VTOL requires an appropriate level of resilience to be in place across all critical systems required for safe flight. This means these new types of aircraft need to be designed, developed, and operated using 'secure by design' principles to ensure each subsystem has basic cyber resilience to achieve the required level of safety. This is important to note as all technical subsystems consist of hardware and/or software, and each has the potential to introduce cybersecurity vulnerabilities with safety implications if not correctly managed.

The cyber-specific certification requirements within SC-VTOL VTOL.2500 have been aligned to existing initial airworthiness specifications, focussing on intended function and failure conditions. For those applicants in the Enhanced Category, MOC 3 to VTOL.2500(b) confirms that the existing risk assessment set out in AMC 20-42 is an accepted means of compliance to VTOL.2500(b). We are also looking to incorporate EUROCAE document ED-305, Information Security Guidance for VTOL, at some point in the future, alongside the existing industry standards (including ED-202, ED-203 and ED-204) that are already Acceptable Means of Compliance against the aircraft certification basis.

We are still considering whether operators of new types of VTOL aircraft would fall in scope of Information Security Management System (ISMS) regulation. UK ISMS is currently the subject of a separate rulemaking task and was subject to public consultation in 2024. A Statutory Instrument is planned to be laid in early 2026 and implementation of UK ISMS is not expected to commence until 2027 at the earliest[xviii].

Airspace and Air Traffic Management

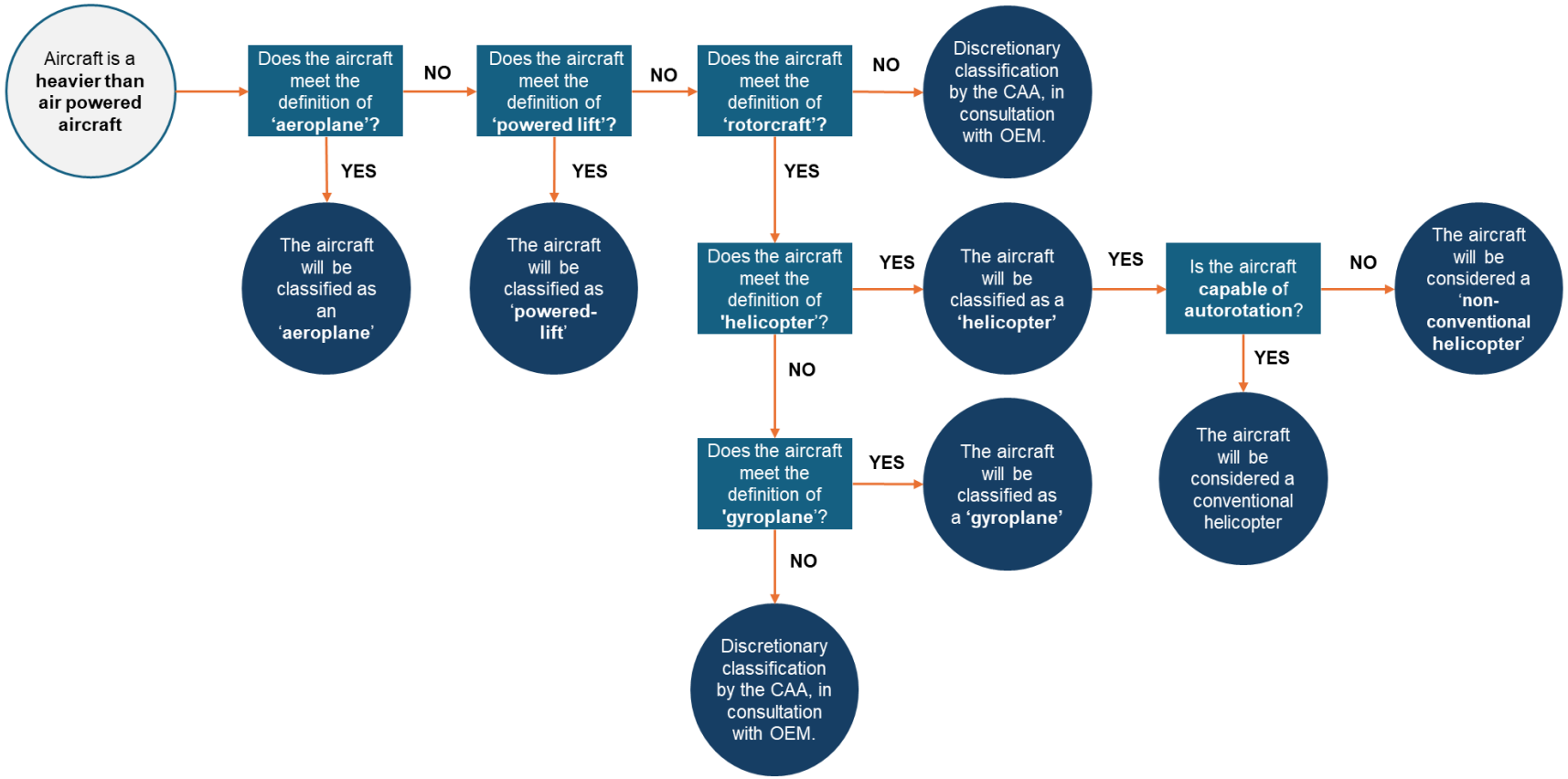
Existing airspace and ATM regulations and policy, including relevant provisions within UK Regulation (EU) 923/2012, UK Regulation (EU) 2017/373 and The Air Navigation Order 2016, are considered robust and adaptable enough to support the integration of new types of VTOL operations. This is based on the expectation that these aircraft will have an operational capability equivalent to either Aeroplane or Helicopters in accordance with existing standardised procedure. As a result, operations of new types of VTOL are expected to be safely integrated into current airspace and ATM regulatory frameworks without the need for regulatory change.

Question 9: *Do you have any further feedback on our policy proposals?*

Question 10: *Please describe how you/your organisation will be impacted by these proposals, including any information on impacts to your costs, trade, innovation*

ANNEX A

Proposed aircraft classification approach



- **'Aeroplane**': an engine-driven fixed-wing aircraft heavier than air that is supported in flight by the dynamic reaction of the air against its wings
- **'Powered-lift':** a heavier-than-air aircraft capable of vertical take-off, vertical landing, and low-speed flight, which relies principally on engine-driven lift devices or engine thrust for lift during these regimes, and on non-rotating aerofoils for lift during horizontal flight *(as proposed in CAP 3186)*
- **'Rotorcraft':** a power-driven heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors
- **'Helicopter':** a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes;
- '**Non-conventional helicopter':** a helicopter that is not capable of auto-rotation *(as proposed in CAP 3186)* Conventional helicopter should be construed accordingly
- **'Gyroplane**': a heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors which rotate freely on substantially vertical axes

ANNEX B

Abbreviations

AAM – Advanced Air Mobility

AMC – Alternative Means of Compliance

AIP – Aeronautical Information Publication

ATM – Air Traffic Management

CAMO – Continuing Airworthiness Management Organisations

CAT – Commercial Air Transport

CMPA – Complex Motor-Powered Aircraft

CS FCD – Certification Specific Flight Crew Data

DfT – Department for Transport

EASA – European Union Aviation Safety Agency

GM – Guidance Material

ICAO – International Civil Aviation Organisation

IFR – Instrument Flight Rules

ISMS – Information Security Management System

MCC – Multi-Crew Cooperation

NASP – National Aviation Security Programme

NAA - National Aviation Authorities

OEM – Original Equipment Manufactuer

OSD – Operational Suitability Data

OLS – Obstacle Limitation Surfaces

PPL – Private Pilots License

RFFS – Rescue and Fire Fighting Service

SMS – Safety Management System

VFR – Visual Flight Rules

VTOL – Vertical Take-off and Landing

ANNEX C

Summary of Questions

Question 1: Do you agree or disagree with our proposals regarding definitions and naming convention? Please explain your answer.

Question 2: Do you agree or disagree with our proposals regarding CMPA? Please explain your answer.

Question 3: Do you agree or disagree with our proposals regarding initial airworthiness? Please explain your answer.

Question 4: Do you agree or disagree with our proposals regarding continuiing airworthiness? Please explain your answer.

Question 5: Do you agree or disagree with our proposals regarding a personnel licensing pathway for commercial licence holders (CPL/ATPL) to secure a type rating to fly new types of VTOL aircraft? Please explain your answer.

Question 6: Do you agree or disagree with our proposals regarding the introduction of a personnel licensing pathway for private pilot licence holders (PPL) to secure a type rating to fly new types of VTOL aircraft non-commercially? Please explain your answer.

Question 7: Do you agree or disagree with our proposed changes regarding Flight Operations regulations? Please explain your answer.

Question 8: Do you agree or disagree with our proposals to update the regulatory framework for Aerodromes? Please explain your answer

Question 9: Do you have any further feedback on our policy proposals?

Question 10: Please describe how you/your organisation will be impacted by these proposals, including any information on impacts to your costs, trade, innovation

Endnotes

[i] eVTOL Delivery Model: https://www.caa.co.uk/our-work/publications/documents/content/cap3169/

[ii] UK Information Security Management Systems consultation reply https://consultations.caa.co.uk/cyber-security/uk-isms-regulation/

[iii] UK.SC.VTOL Issue 2.pdf https://regulatorylibrary.caa.co.uk/sc/Content/PDF%20Documents/UK.SC.VTOL%20Issue%202.pdf

[iv] EASA Environmental Protection Technical Specifications (EPTS) applicable to VTOL-capable aircraft https://www.easa.europa.eu/en/document-library/product-certification-consultations/consultation-paper-environmental-protection and https://www.easa.europa.eu/en/document-library/product-certification-consultations/consultation-paper-environmental-protection-0

[v] eVTOL Delivery Model: https://www.caa.co.uk/our-work/publications/documents/content/cap3169/

[vi]Roadmap for Advanced Air Mobility Aircraft type certification: https://www.faa.gov/air-taxis/NAA-Network-Roadmap-Advanced-AirMobility-Aircraft-Type-Certification-Edition-April2025.pdf

[vii]Future of Flight Action Plan: https://www.gov.uk/government/publications/future-of-flight-action-plan

[viii] Policy statements: https://www.caa.co.uk/our-work/research-and-innovation/enabling-advanced-air-mobility/

[ix] STPA-based Safety Analysis of eVTOL Operations: https://www.caa.co.uk/our-work/publications/documents/content/cap3141/

[x] Protecting the Future: Trials and Simulation of Downwash and Outwash for Helicopters and Powered-Lift Aircraft https://www.caa.co.uk/our-work/publications/documents/content/cap3075/

[xi] Noise measurements from eVTOL aircraft: A review of available data https://www.caa.co.uk/our-work/publications/documents/content/cap2506/

[xii] Full CMPA definitions https://www.legislation.gov.uk/uksi/2016/765/schedule/1 and https://www.legislation.gov.uk/eur/2008/216/article/3/2009-12-14

[xiii] UK Regulation (EU) 748/2012 https://regulatorylibrary.caa.co.uk/748-2012-pdf/PDF.pdf

[xiv] UK Regulation (EU) 1321/2014 https://regulatorylibrary.caa.co.uk/1321-2014-PDF/PDF.pdf

[xv] UK Regulation (EU) No. 1178/2011 https://regulatorylibrary.caa.co.uk/1178-2011-pdf/PDF.pdf

[xvi] UK Regulation (EU) 965/2012 https://regulatorylibrary.caa.co.uk/965-2012-PDF/PDF.pdf

[xvii] CAA ground handling policy development https://www.caa.co.uk/commercial-industry/airports/safety/ground-handling/ground-handling/

[xviii] UK Information Security Management Systems consultation reply https://consultations.caa.co.uk/cyber-security/uk-isms-regulation