UK Civil Aviation Authority

CAA consultation on test site requirements for aviation innovators

CAP3011

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Executive summary

Rapid test and development are vital for achieving the collective vision for aviation, as laid out in the Future of Flight Action Plan, Jet Zero and Airspace Modernisation Strategies.

The majority of this testing will be conducted by industry, but the CAA has a role to play. We need to understand the needs of operators and manufacturers when they test and ensure that our regulatory approach supports, enables and does not hinder.

In June 2023, we conducted a survey of organisations who are currently conducting testing or plan to do so to understand their needs. This work was supported by funding from the UK Research and Innovation (UKRI) Future Flight Challenge, delivered by Innovate UK and the Economic and Social Research Council (ESRC). This document summarises the findings from that survey, also giving an update on our progress to date and plans to meet those needs.

The survey results present a diverse set of needs and highlight areas where the current regulatory approach hinders the pace of testing.

Our response to this has been to set up a dedicated Test and Evaluation function in January 2024. This team will support industry in their testing and work with them to ensure that the CAA is gathering data from testing and operations to support new policies and regulation. We have already addressed some of the feedback from the survey. For example, by publishing CAP722G which describes how RPAS operators can make minor changes to their systems during testing without having to obtain a variation to their operational authorisation.

We recognise that there is more the CAA can do to support the testing industry needs to do. To this end we have begun work on a pre-defined risk assessment (PRDA) for BVLOS RPAS testing within the Specific category, and we are working with partners including the MoD and ATI to improve the accessibility of existing sites suitable for testing.

Part 1
Introduction

Purpose of this exercise

The speed of innovation in aviation is accelerating sharply. To realise the vision laid out in the Future of Flight Action Plan, industry need to rapidly test and evaluate new products in order to quickly and safely bring them to market. The CAA must support this testing and enable the growth of the industry – while maintaining safety.

As a result of this need and from feedback from industry, the UK Research and Innovation Future Flight Challenge commissioned the CAA to:

- Understand the needs of organisations involved in developing and testing new technology within the Future of Flight industry
- Assess what changes the CAA can make to better support these requirements and enable the industry.

This CAP summarises the output of that work, presenting industry's barriers to testing their novel aviation technologies at UK test sites. It also sets out what the regulator has done and will do to improve the test and evaluation environment.

Methodology

What we did

The work consisted of two phases:

1. A CAA team conducted an initial review of the current testing options and facilities for the Future Flight industry - defined as Remotely Piloted Aerial Systems (RPAS), Electric vertical take-off and landing aircraft (eVTOL), hydrogen powered and battery powered aircraft - with particular focus on cross public sector provisions.
2. A survey was created to collate views from industry. This was issued and completed by 81 organisations across RPAS, eVTOL, and hydrogen operators and Original Equipment Manufacturers (OEMs). The survey ran from **14/06/2023 to 30/06/2023.**
    a. To raise awareness, an online briefing event was held in June 2023 and attended by over 100 government and industry representatives, which included a presentation and Q&A session.

Summary of internal review

The test sites consultation commenced with an internal workshop comprising CAA subject matter experts from airspace, RPAS, Innovation Advisory Services and the Rapid Capabilities Office.

The meeting aimed to explore:

- The scope of test sites, and what they should enable
- What the CAA wants to learn from the tests that take place at those sites
- What the CAA's ownership model could be.

There was a consensus that test sites should be used principally for R&D of technologies that have reached an operational testing phase, typically Technology Readiness Levels (TRLs) 4-7. Given that the CAA is the regulator of technologies that are intended for civil use, military only technologies are also deemed out of scope, although it was noted that so-called dual-use technologies should be considered, and that the Military Aviation Authority (MAA) should be closely consulted to decide on an appropriate means of regulating and testing these market entrants. The importance of close collaboration with the MAA was reiterated by the publication of the Ministry of Defence's Drone Defence Strategy in February 2024.

The CAA discussed the options for how we approve test sites and how we can make it easier for operators to fly at approved test sites. It was agreed that the main aims should be to facilitate test and evaluation, and, to aid market entrants with demonstrating the capability and scalability of their technologies.

In exchange for receiving delegated responsibilities having met strict CAA criteria, the CAA would gain access to the cutting-edge of many aspects of aviation, bringing insight to staff, enabling a quicker and more effective pathway to certification and authorisation. This greater knowledge would also be used to inform future policy, contributing to the British Government's aim for the UK to be a leader in pro-innovation regulation.

Summary of External Consultation

A consultation was carried out to provide greater knowledge about industry's testing needs, as well as their sentiments towards factors such as:

- Willingness to work collaboratively with other operators, sharing their findings with the CAA
- Test facilities that enable the mixing of crewed and uncrewed aircraft
- Working with the military
- Relative importance of test site characteristics and their locations

The consultation consisted of a mixture of discrete and open-ended questions, giving respondents opportunities to provide full written submissions.

The full list of questions and summary of results is given in Appendix A.

Insights from the consultation results

1) There are a diverse group of companies and organisations with interest in testing

As displayed in Figure 1, a broad section of aviation stakeholders in the emerging technology space responded to the consultation, with the most responses coming from the area of Remotely Piloted Aircraft Systems (RPAS). This is not a surprise given the relatively large size of the RPAS sector and the rapid development of technology in the area. There were also a significant number of aircraft manufacturers representing sectors such as defence and net zero aviation.

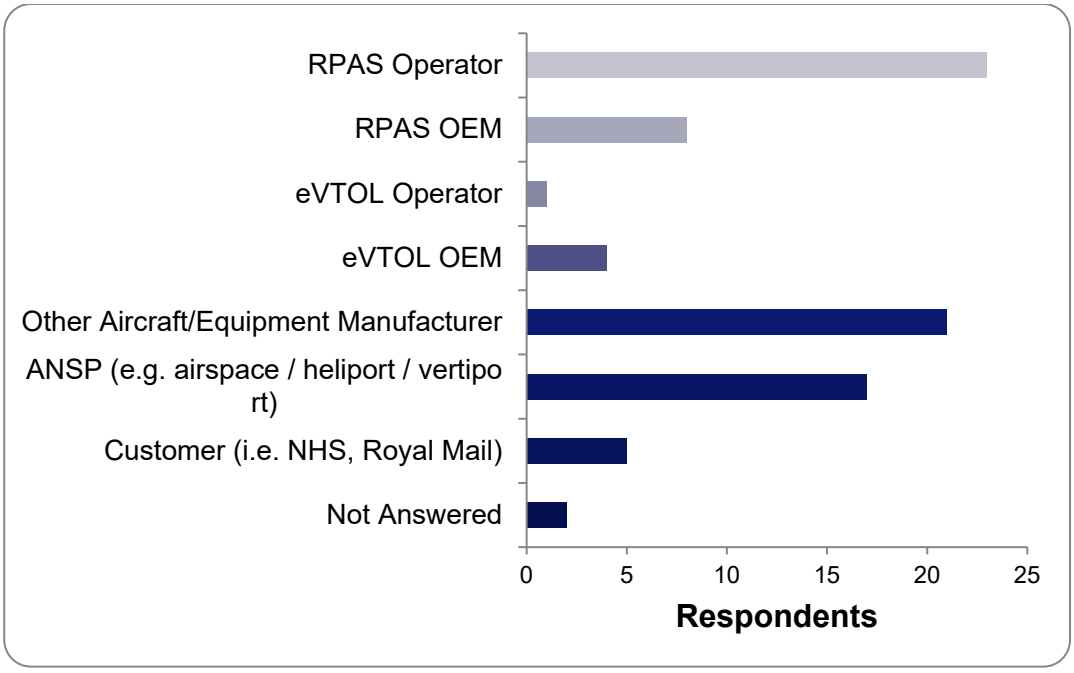

Figure 1 Primary area of business

Image description: Graph showing backgrounds of the different respondents to the survey, and the number from each category. The categories were as follows: Original Equipment Manufacturer for eVTOLs and RPAS, operators of eVTOLs and RPAS, air navigation service provider, other manufacturers, and customer.

2) Facilities and topography are the most important considerations for those conducting tests

With respect to the relative importance of different site characteristics on innovators, Figure 2 shows that the most important factors were flight planning facilities and access to suitable topography. Perhaps surprisingly, of lower ***relative, not absolute,*** importance were factors such as location and availability of facilities, suggesting greater flexibility in these areas for innovators.

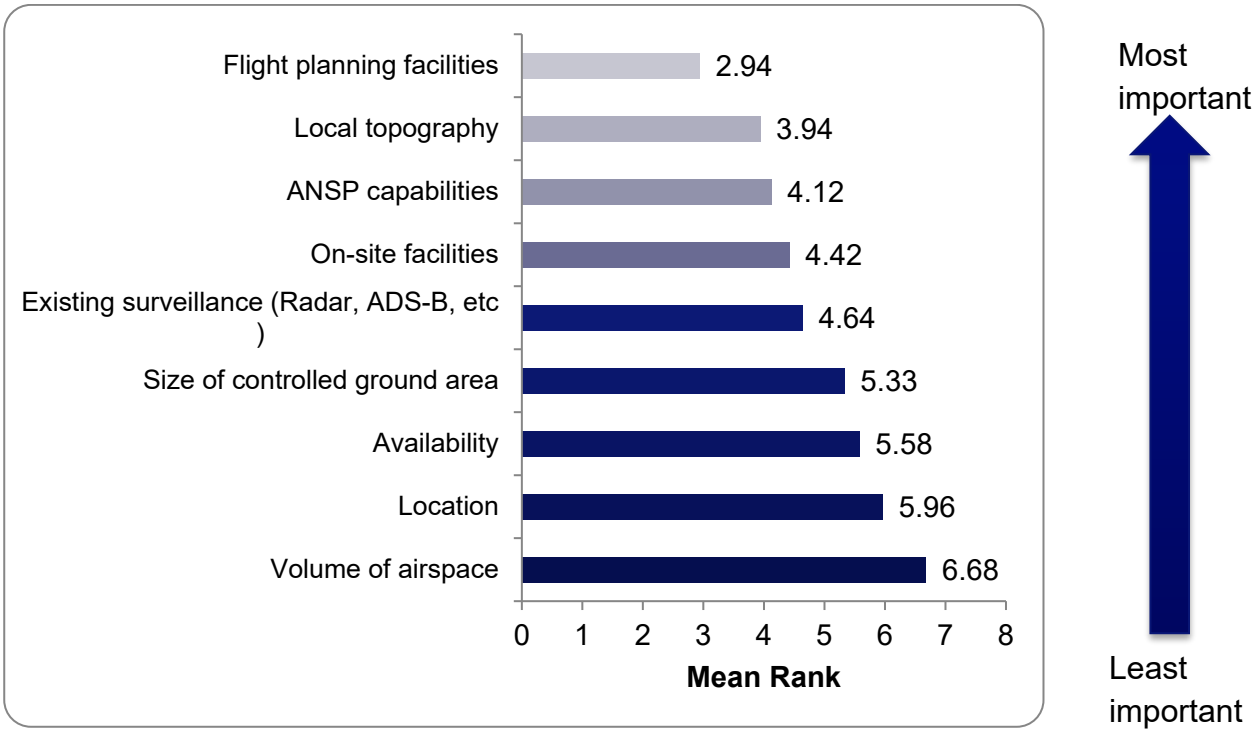

Figure 2 Criteria for a test area ranked in order of importance (with 1 most important and 8 least important)

Image description: graph showing the results of a question where respondents were asked to rank the relative importance of a pre-defined set of eight test facility characteristics from 1 to 8, with 1 being the most important and 8 being the least. Alongside the chart is an indicative arrow to help the reader identify that the test site characteristic at the top of the graph is most important, and towards the bottom are relatively less important.

3) Sites need to cater for a diverse group of air users

The consultation sought feedback from respondents on a proposed scope for test sites. Following internal discussions, the CAA's view was that the following areas of new aviation would fall in scope of test sites.

In scope:

- Unmanned Aircraft System (UAS)
- electric Vertical Take-Off and Landing (eVTOL) aircraft
- 'Net Zero' flight
- Ground infrastructure operations
- UAS detection/deterrent solutions
- Unmanned Aircraft System Traffic Management (UTM)

Out of scope:

- Routine flight operations
- Space

The results were as follows in
Table 1.

Table 1: Do you agree with what is in and out of scope for trial areas?

Option	Total	Percent
Yes	61	75%
No	15	19%
Not Answered	5	6%

Most respondents agreed with the scope (75%), but some made suggestions to broaden the remit of test areas. The main intent for this type of suggestion was that General Aviation should also be included in cases where airspace integration is being tested. The rationale being that this would enable Detect And Avoid (DAA) technologies to be examined from the perspective of both novel and 'extant' aircraft.

Several responses proposed the following additions to the scope:

- Expand UTM systems to all future airspace users including eVTOLs (UTM may imply UAS only).
- Novel air systems including (but not limited to) airships, balloons, rockets etc.
- High altitude platforms testing

Other feedback suggested that Test Sites should not be solely focussed on TRLs 4-7. This reflected areas where technologies are largely mature, but their Concepts of Operations are novel and require rigorous testing, examples being airships and amphibious aircraft.

4) Industry wants to test in a range of locations but does not currently know how to access this

Above all respondents noted that the geographical distribution of current test centres and their capabilities is not known or easily discoverable – identifying that this data is not centrally held or maintained currently.

Other common key factors that were addressed were: a central or convenient location to reduce transport costs and/or accommodation – potentially allowing more environmentally friendly transport methods to be available. One response suggested having a small number of locations, so that ecosystems can build up generating conditions for

accumulative economic benefits. A competing or opposing need expressed by many was that a balance must be struck between convenience and rurality, given the airspace and third-party risk mitigation requirements to undertake testing. eVTOL Original Equipment Manufacturers (OEMs) highlighted the need to have large test areas, take-off and landing sites that are different, and heterogeneous testing environments.

Whilst many expressed the wish to test in sparsely populated areas, there were different views regarding testing over water. One major operator said that their testing will take place over sea, so require segregation in these areas, others said that early testing for them will preferably take place inland so that in case of failure the system is recoverable.

5) Operators will seek a range of conditions and weather depending on the maturity of the technology

To an extent, the geography of the UK, weather and locational considerations are intertwined.

Many respondents said that for initial testing, ‘good’ weather conditions i.e. dry, light winds and good visibility are preferred. These considerations tend to lend themselves to lowland area of the south-eastern quadrant of Great Britain. However, as their technologies progress through TRLs, the need to test their robustness grows, hence, they then would require windier weather conditions. These conditions are more typical of western and upland areas.

The participation of the Met Office in testing activities in the south-west of England offers opportunity to better understand weather conditions and forecasting for the bottom few hundred feet of the atmosphere.

6) The availability of certain facilities is important, particularly communications and surveillance

The availability of suitable facilities rated highly among stakeholders’ barriers to testing.

1. *Utilities infrastructure*

Infrastructure constraints rated most highly, with the need to be close to good transport links seen as important from the perspective of optimising travel time and minimising costs. Some responded that proximity to power lines and other similar infrastructure offer potential benefits to test possible use cases for their technologies.

In terms of in-situ facilities, respondents named hydrogen fuelling facilities as essential for net zero aviation, as well as vertiport infrastructure.

2. *Communications Infrastructure*

One response provided particularly useful insight into communications infrastructure needs:

> *'Command and Control (C2) radio design assurance is critical to meeting the criteria needed to manage risk during BVLOS operations and to meet the safety case requirements.*
>
> *Control and Non-Payload Communications (CNPC) C2 can be provided by C2 Communication Service Providers (C2CSP) and this model has been adopted by many of the Federal Aviation Administration BEYOND[1] test sites (e.g. Vantis in North Dakota and Chocktaw Nation in Oklahoma) as a means of delivering highly assured and pre-authorised shared ground infrastructure to help mitigate costs.*
>
> *It would be highly advantageous to the UK if CAA authorised test sites enabled shared use of pre-approved C2CSP ground infrastructure with the Ofcom spectrum approvals provided to permit the testing, proving and demonstration of technologies like C-Band CNPC C2 and 978MHz ADS-B at greater scale.*
>
> *Ground surveillance systems Automatic Dependent Surveillance–Broadcast (ADS-B), Flight Information System Broadcast (FIS-B) and Traffic information service – Broadcast (TIS-B) supporting Detect and Avoid are further examples of shared ground infrastructure that the CAA Airspace Modernisation Strategy seeks to deliver, and should be provided at new test sites.*
>
> *FIS-B & TIS-B will not come into being, and operators will not equip with appropriate airborne receivers, without pump priming to establish the shared ground infrastructure.'*

7) Minimising overflight and disturbance of the public ensures safety and acceptance

Many respondents agreed that dealing with these issues was of high importance, and whilst they felt that for security and safety reasons the public should be kept at a distance from test sites during test phase, they also thought that measures should be taken to engage with the public, for example through a 'STEM' programme, or a public activity day.

Regarding infrastructure testing and innovation, it was also suggested that test sites should provide functionality to test in simulated urban and rural areas with poor ground-based sensor coverage, as well as GPS denied environments/jamming events. This will

[1] https://www.faa.gov/uas/programs_partnerships/test_sites/locations

allow them to better test RPAS robustness extremes/edge cases; ultimately to reassure the public.

8) Current regulation and policies do not always support testing

Regulatory approval times seems to be the most common complaint, whether this is for an initial application, or an amendment to an Operational Authorisation. One respondent suggested a single Test & Evaluation Pre-Defined Risk Assessment (PDRA) would be a good way to reduce turnaround times from months to days.

The approval process is congested and delayed by the single process for operational approval, whether for an innovator ***trialling*** a new product or an operator ***operating*** a product.

> *'The single biggest issue is the time taken to get regulatory permission to test anything remotely novel or BVLOS, which is critical for future AAM business in the UK. In an ideal world, a 24-hour turnaround for a test would be ideal (it is currently 6-9 months).'*

The ability for industry partners to conform to both the CAA and Military Aviation Authority regulations is perceived to be time consuming and costly. It was suggested, more strategic Military Aviation Authority/CAA relations should help ease this issue.

It was also raised that test areas could be undermined if the Operating Safety Case needs to be replicated by the applicant.

Standards also need to be realistic and attainable. The 'ATLAS[2]' site in Spain was reported to work well in this regard. ATLAS has an area of segregated airspace that is activated by Notice to Air Missions (NOTAMs) and allows for a variety of operations beyond European Standard Scenario constraints.

With respect to ***aerodrome regulation*** and infrastructure, respondents referred to:

- No standards, regulations or guidance on how airports can store hydrogen, how hydrogen aircraft should be categorised, how fuel assurance should be handled, etc. These issues, amongst others, are being considered by the CAA's hydrogen challenge, which commenced in January 2024.
- Restrictive CAA requirements regarding procedural separation at airports
- Regulatory landscape - although CAP2533 Airspace Policy Concept is a good concept roadmap

[2] http://atlascenter.aero/en/

9) A range of different airspace is required to support testing at different stages

Feedback received during the consultation confirmed the view that RPAS, AAM and other new forms of aviation need to be tested in a range of airspace contexts, as we move from a system of segregation to integration, depending on their stage of maturity and the aims of their testing regime.

Respondents provided several airspace related requirements, which can be broadly categorised in the following themes:

- *Airspace volume and location*: Availability of large volumes is highlighted as very important, improving operational testing capabilities but also providing a safety buffer zone. Certain test cases will require long ranges to exercise systems to the fullest extent (10s if not 100s of miles). Certain test cases will require altitudes ranging from very low (e.g., ~600ft for testing geophysical sensors) to very high (e.g., up to 20,000ft for tethered and free flight balloons/airships, up to 80,000ft for High-Altitude Platform Stations, up to 150,000ft for rockets).
- Depending on the systems being tested, the location of the available airspace will be key - certain test cases may require actual or simulated urban environments, flight over large volumes of water, testing overpopulated areas as a guise for commercial demonstration and commercial operations etc.
- *Airspace type and access control*: It has been highlighted that different types of testing will require different types of access control for the airspace where the test is being conducted. For instance, some BVLOS testing, which has been emphasised in several responses, will require access to segregated airspace, which should be available in a flexible way and with minimal lead times. However, certain systems will require testing in controlled mixed 'unsegregated' airspace, in presence of both manned and unmanned traffic.
- *Special airspace requirements*, such as provision of "airspace corridors" providing access from manufacturing facilities to the test site.

Concerns were voiced that Aerodrome Traffic Zones (ATZ) are not currently considered as a suitable means of segregation despite their real-time monitoring and control from an Air Traffic Services Unit (ATSU), whereas unmonitored Temporary Danger Areas (TDAs) are considered suitable.

10) The length of time for a test programme varies

Respondents were asked about the length of time they typically require to undertake a programme of testing; the results given in Figure 3 show there is a wide distribution of

requirements, with 16% managing to complete testing in less than 48 hours, whilst 40% said they would need to take in excess of a month to carry out all of their testing.

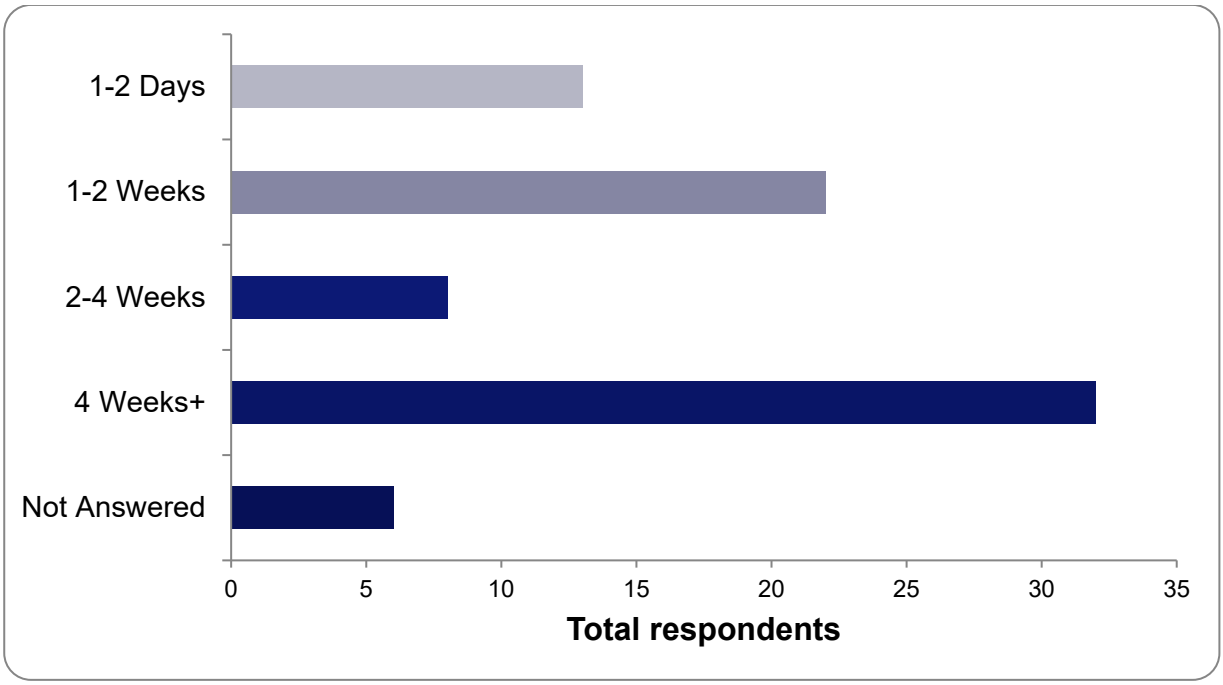

Figure 3: Length of time needed to conduct a typical test programme

Image description: Graph showing the continuous length of time that respondents said they required access to a test site, on a typical basis. The choice of possible answers ranged from 1-2 days to more than four weeks.

It is clear from many of those who responded ‘4 weeks+’ that testing might not take place on a daily, continuous basis. Respondents are asking for greater flexibility and understanding of the nature of testing programmes from the operator and OEM’s perspective. For example, in a Flight Test Programme, a single test or series of tests could be undertaken in one tranche (for smaller drones, normally in a single day), followed by a spell of days (often weeks) to analyse the results of the tests and subsequently tweak the system. For most, it is likely to be an ongoing ad hoc need for several months, where testing is needed just for 1 or 2 days per month, but with complete flexibility about when these tests take place.

Further insights

In additional to the topics covered in the consultation, it is essential to consider a wide range of financial and other practical matters which may have an impact on delivering test and evaluation infrastructure in the UK. Some of these are outlined below.

Financial implications

Even though there were no specific questions within the consultation regarding the expense of operating and undertaking testing of novel products, many comments were made independently, by respondents and other stakeholders in the Test and Evaluation ecosystem. A comparison with other European neighbours was made, noting that testing within the UK is ‘significantly more expensive’, suggesting that costs are acting as a deterrent to conducting test programmes within the UK, even for innovators located in this country. In future discussions with test sites, there is a need that future costs to use the facilities are reasonable, ensuring that they are not the ‘best equipped’ yet ‘least used’ due to their affordability.

The ‘raw’ costs of hiring a test site are not the only ones to be considered. Several participants mentioned another key factor was whether a central or convenient location was available, to reduce transport and/or accommodation costs. One response suggested that the best way of obtaining optimal value for money would be to have a small number of test locations, so that testing ecosystems can build up. From this, the conditions may be created for cumulative economic benefits.

From the CAA’s perspective, the ‘user pays’ funding model under which it operates means that it must be able to recover the costs involved. This means that a funding model must be devised that recoups costs incurred from those involved in the offering or alternative grant funding sources are identified.

Location of consultation respondents

Figure 4 shows the locations of survey respondents. It indicates that the majority of the respondents are based in the south-eastern corner of the British Isles, and that there were no respondents from Northern Ireland. This may therefore impact on the nature of the consultation results, given that more rural parts of the UK best suited to testing are mainly located in the north and west.

There are certain challenges with regards to identifying the location of a respondent:

- Certain organisations own or operate in multiple locations. In certain cases, it has proved useful to add all these sites (e.g., Highlands and Islands Airports Ltd owns and operates 11 airports, all of which are shown on the map).
- In other cases, only one primary location has been chosen to represent an organisation (e.g., Rolls-Royce has multiple sites across the UK but is only shown in Derby, where most of their activities are based).

It should be noted that there is not yet an official register of test sites within the UK; this was noted as a significant shortcoming of the country's innovation offer by many of those who participated in the consultation.

Figure 4: Locations of the participants in the test sites requirements consultation

Image description: map of the British Isles depicting the geographical spread of respondents to the test sites requirements consultation. Consultation participants are split into following categories, as given in the key (inset): Original Equipment Manufacturer for eVTOLs and RPAS, operators of eVTOLs and RPAS, air navigation service provider, other manufacturers, and customer.

Part 2

CAA Actions Completed

Based on the feedback from this consultation and other information from industry, the CAA have already completed three specific actions to support testing and evaluation in the UK.

1. Established a Test and Evaluation Team: In January 2024, the CAA appointed a Test and Evaluation Manager and since then have been building a team which will shortly have a headcount of six. The team sit within the Future Safety & Innovation division and their purpose is to:

- Support and enable innovative operations where the CAA and industry need to learn together to develop operations, technology and the regulation to support them. The first example of this is the TRA Sandbox projects where Test and Evaluation is supporting projects to get flying.
- Gather data from tests and operations, both within sandboxes and outside, to facilitate CAA learning and improve policy development
- Support the testing that industry want to do and provide them with the regulatory route to do this.

2. Issued RPAS modification policy: The consultation highlighted that RPAS operators and developers in the Specific category required a variation to their Operational Authorisation whenever they made a change to the system. This slowed testing and development. In May 2024 we published CAP722G which allows operators to define a set of minor changes that they may make to their system within their OSC and then make these changes without a variation to the Operational Authorisation. This enables more rapid testing and development within the Specific Category.

3. Begun collaboration with the Ministry of Defence: Since May 2024 we have opened discussions with the Ministry of Defence on the possibility of using parts of their existing facilities and estate for RPAS and other testing. This has the advantage of being able to utilise already established Danger Areas and government infrastructure, reducing the need for further Temporary Danger Area across the country.

Further CAA actions

In addition to the measures that we have already adopted, the CAA Test and Evaluation team will:

Create a PDRA for RPAS testing: The CAA are starting work in June 2024 to develop a Pre-defined Risk Assessment (PDRA) for BVLOS RPAS testing at designated test sites. This will allow operators who are flying at designated sites to self-declare that they meet the requirements for operation and receive authorisation quickly. This would reduce the time required to obtain authorisation, and, also allow an increased degree of variation and development of the system, without the need to reapply. The CAA will assure compliance through oversight including desk based and on-site inspections in the same way as existing PDRAs.

Test sites used with this PDRA would have to meet a set of requirements and may have a role in assessing the readiness and compliance of operators.

Developing a list of test sites: We will continue to work with bodies such as the Aerospace Technology Institute and Eurocontrol, to create and service a website detailing the test sites available for aviation testing in the UK, along with the capabilities of such sites.

Hydrogen test sites: The ongoing Hydrogen challenge is determining the requirements for hydrogen test sites for ground support equipment; aircraft and aerodromes. This work will be carried out to support the Jet Zero Council and the Jet Zero Strategy.

APPENDIX A

Summary of questions in external consultation

This appendix summarises the questions within the consultation, all of which have been used to inform our next steps for the CAA Test and Evaluation team.

What is your primary area of business?

Option	Total	Percent
RPAS Operator	23	28.40%
RPAS OEM	8	9.88%
eVTOL Operator	1	1.23%
eVTOL OEM	4	4.94%
Other Aircraft/Equipment Manufacturer	21	25.93%
ANSP (e.g., airspace / heliport / vertiport)	17	20.99%
Customer (i.e., NHS, Royal Mail)	5	6.17%
Not Answered	2	2.47%

Do you think creation CAA approved test areas would benefit aviation innovation in the UK?

Option	Total	Percent
Yes	79	97.53%
No	1	1.23%
Not Answered	1	1.23%

Do you agree with what is in and out of scope for trial area?

Option	Total	Percent
Yes	61	75.31%
No	15	18.52%
Not Answered	5	6.17%

Please rank the criteria for a test area in order of importance (with 1 most important and 8 least important)

Item	Ranking
Volume of airspace	6.68
Location	5.96
Availability	5.58
Size of controlled ground area	5.33
Existing surveillance (Radar, ADS-B, etc.)	4.64
On-site facilities	4.42
ANSP capabilities	4.12
Local topography	3.94
Flight planning facilities	2.94

Are there any other stakeholders that we need to consider?

Option	Total	Percent
Yes	48	59.26%
No	31	38.27%
Not Answered	2	2.47%

Would having multiple locations/routes throughout the UK with varying environments to work in be beneficial to your trials?

Option	Total	Percent
Yes	73	90.12%
No	4	4.94%
Not Answered	4	4.94%

Would you require the ability to mix crewed and uncrewed aircraft in the test airspace?

Option	Total	Percent
Yes	46	56.79%
No	31	38.27%
Not Answered	4	4.94%

Would you be willing to work collaboratively with other operators for interoperability trials?

Option	Total	Percent
Yes	76	93.83%
No	2	2.47%
Not Answered	3	3.70%

Would you be willing to work at military locations?

Option	Total	Percent
Yes	68	83.95%
No	8	9.88%
Not Answered	5	6.17%

In addition to your own testing/development, would you be willing to collaborate with the CAA on relevant test programmes?

Option	Total	Percent
Yes	76	93.83%
No	1	1.23%
Not Answered	4	4.94%

How long would you need to conduct a typical test programme? (Please select one)

Option	Total	Percent

1-2 Days	13	16.05%
1-2 Weeks	22	27.16%
2-4 Weeks	8	9.88%
4 Weeks+	32	39.51%
Not Answered	6	7.41%

APPENDIX B

Survey respondents

The CAA sincerely thanks the following organisations for participating in this consultation:

AAA
Air Caernarfon Ltd
Airways Aero Association Limited
Altitude Angel Ltd.
Animal Dynamics Ltd
ARC Aerosystems
ARPAS-UK
ATAG Design Services Ltd
Axis Aerospace Ltd
BAE Systems (Air), Warton Aerodrome, Preston, Lancashire
Banks Engineering and Management Ltd
Bristow Group
British Antarctic Survey
British Transport Police
CEH
Clogworks Technologies Limited
Coptrz
Cornwall Airport Newquay
Cranfield Aerospace Solutions Ltd
Cranfield University
D&F Tech
DAATM
DE&S
Devon Air Ambulance
Draken Europe
Drone Evolution
Eagle Eye Innovations
E-Plane Ltd
Eve Air Mobility
Exeter and Devon Airport Ltd.
Flare Bright
Graham Air Intl
Heart of the South West Local Enterprise Partnership
HeliOperations
Highlands and Islands Airports Ltd
Hybrid Air Vehicles
Imperial War Museum
ISS Aerospace
L3Harris Integrated Release Solutions Ltd

Lilium GmbH
London Southend Airport
Marshall Futureworx (a trading style of Marshall of Cambridge Aerospace Ltd)
Marshall of Cambridge Aerospace Ltd
Matt Cant Photography
Met Office
MOD - Defence UxS Strategy Lead
NATS Services Limited
OS
Point Zenith
QinetiQ
Rolls-Royce
SAMS
Shetland Space Centre Ltd (Trading as SaxaVord Spaceport)
Skyfarer
Skynique
Skyports Drone Services
Skyports Infrastructure
SLiNK-TECH
Snowdonia Aerospace LLP
STRALE
TEST-FUCHS Aerospace Systems GmbH
Thales UK
The Royal Aeronautical Society
uAvionix Corporation
UK MOD
UKCEH
United Nations
West Wales Airport Ltd
Wisk Aero LLC
ZeroAvia