# Electronic Conspicuity – Initial Technical Concept of Operations: Consultation Response Document

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# Executive Summary

The Civil Aviation Authority (CAA) published a consultation on the Electronic Conspicuity (EC) – Initial Technical Concept of Operations (CAP 3140) on 15th July 2025. The Technical Concept of Operations outlined nine evidence-based positions relating to the role of EC in UK airspace, EC device standards, airspace architecture, equipage requirements and responsibilities for installation and operation. We also issued a separate Call for Evidence to gather early views that will inform the potential future development of policy on an EC mandate for lower airspace users in the UK. These positions are intended to help maintain, and where possible, improve safe operations in non-segregated airspace as traffic grows and diversifies, by strengthening interoperable electronic detectability to support situational awareness and enable BVLOS integration. The catalyst for this work stems from three enabling drivers outlined in the EC Technical Concept of Operations, being: the International Civil Aviation Organisation Global Air Navigation Plan, the UK Airspace Modernisation Strategy and the UK Future of Flight Action plan.

The consultation closed on 6 October 2025 and received 808 responses from across the aviation sector. Respondents included members of the General Aviation (GA) community, UAS operators, commercial aviation stakeholders and trade associations. The CAA has read and reviewed all responses provided. This consultation response document sets out a synopsis of the significant themes informed by responses to the consultation. This will inform next steps in developing further iterations of the EC Technical Concept of Operations.

Overall, respondents recognised and generally valued the potential for EC to improve safety and situational awareness for both manned and unmanned aircraft. However, views varied across different airspace user groups, particularly regarding the practicality, proportionality and costs associated with equipage requirements. Many respondents emphasised the importance of ensuring the interoperability of EC systems for maintaining situational awareness, as well as the limitations of low-power EC devices and the need for further clarity around device standards and performance thresholds. Respondents noted that uniform requirements would be unsuitable due to the complex variety of operational needs between fixed wing, rotary, light and unmanned aircraft.

CAA policy direction on EC continues to be a core enabler of the UK's Airspace Modernisation Strategy, which looks to enhance safety, reduce the mid-air collision risk and enable integration of new airspace users. We will continue to review our positions through a dedicated programme of testing, trials and further research throughout 2026. These activities will inform our EC policy and other associated policy documents, such as detect-and-avoid (DAA), Unmanned Aircraft Systems Traffic Management (UTM) and ground infrastructure. This highlights that EC is not the panacea and only one part of a broader set of solutions, particularly in higher risk environments.

Our approach aims to enhance operational safety for all users. This will facilitate the safe integration of BVLOS UAS in non-segregated airspace, while recognising the diverse needs of different airspace operators. Subject to programme dependencies and the outcomes of ongoing testing, the CAA expects to publish a revised version to the EC policy set out in CAP 1391 and an updated EC Technical Concept of Operations in late 2026 or early 2027. The CAA will continue to work closely with stakeholders and provide further opportunities for engagement, including through the forthcoming consultation on an EC Mandate.

Chapter 1
# Introduction

## Context

1.1 Electronic Conspicuity (EC) is an essential element to enhance airspace safety and situational awareness by enabling aircraft to be detected electronically. In the future, EC will continue to play a crucial role in improving the situational awareness for General Aviation (GA) and will facilitate the safe integration of Beyond Visual Line of Sight (BVLOS) Unmanned Aircraft Systems (UAS) and other emerging aviation technologies with existing airspace users[1]. The successful implementation of EC in the UK requires balancing immediate priorities to validate our ConOps positions with longer term (beyond 2027) goals to make sure the CAA keeps up with technological advancements to refine our standards.

1.2 The CAA published the Electronic Conspicuity – Initial Technical Concept of Operations (CAP 3140) on 15 July 2025 setting out clear, evidence-based positions that provide a realistic and proportionate pathway for successful adoption. The consultation included nine positions that the CAA is proposing to adopt as technical requirements for the airborne use of EC in the UK. These positions focus on the role of EC in UK airspace, airspace architecture, equipage requirements and the responsibility for EC installation and efficacy. The consultation also outlined our view on the short-term and longer-term steps for EC implementation, including the consideration of introducing a UK wide EC Mandate. A summary of the consultation positions is provided in the following section.

1.3 This consultation builds on earlier work on EC and ongoing engagement with stakeholders through established forums. For example, the CAA previously consulted on EC in 2019 (CAP 1776) and published the consultation response document in CAP 1837. That response document emphasised that EC is an enabler of maintaining safety and managing complexity. Since then, we have maintained ongoing engagement through the relevant working groups and forums, such as EUROCONTROL and other European regulators. Further detail on our previous consultations is available at: Call for evidence: Electronic Conspicuity Solutions - Civil Aviation Authority - Citizen Space.

1.4 The consultation closed on 6 October 2025 and received 802 responses via the online feedback form and 6 responses via email from across the aviation sector, including UAS operators, the GA community, commercial aviation industry and trade associations, amongst others. The GA community provided 737 responses (91.9%) through the online form. People representing organisations provided 74 responses (9.2%). These organisations were made up of the GA community (48.6%), UAS operators (18.9%), commercial aviation industry (14.9%), national representative

[1] Section 1.4 of the EC Technical Concept of Operations (CAP 3140) outlines the scope of operational categories for UAS. The ConOps does not deal with certified category UAS as it is assumed that certified category systems will use the same levels of equipage as manned aircraft flying IFR.

organisations (8.1%), local organisations (4.1%) and other organisations (24.3%)[2].

1.5 The CAA has read and reviewed all responses provided. The feedback received in this consultation will be used to inform our approach to validating our positions through ongoing testing, trials and further research. We will also use the feedback to inform the ongoing development of the future EC policy and other associated policy documents, such as detect-and-avoid (DAA), Unmanned Traffic Management (UTM) and ground infrastructure.

## Document Summary

1.6 This consultation response document takes the following structure:

- Chapter 1 sets out the context of the Electronic Conspicuity Technical Concept of Operations consultation, the structure of this document and a recap of the EC positions.
- Chapters 2 to 6 consider each EC position in turn and sets out our proposed updates to the Technical Concept of Operations. Each position includes a summary of relevant feedback provided to the consultation and the rationale for our proposed next steps.
- Chapter 7 provides a summary of the feedback submitted in response to the Call for Evidence on an EC Mandate and sets out our proposed next steps.
- Chapter 8 provides an overview of general feedback to the consultation.
- Chapter 9 provides a summary of next steps.

1.7 In addition, the appendices to this document provides a quantitative analysis of respondent demographics and question responses.

## Recap of EC Positions

1.8 This section provides a recap of our proposed positions on EC. Refer to the EC Technical Concept of Operations (CAP 3140) for further detail and the reasoning behind the positions.

### The Role of EC in UK Airspace

Position 1. EC will be an enabler for both air-to-air tactical and strategic deconfliction within non-segregated airspace. Tactical deconfliction will be the primary mitigation, while strategic deconfliction will enhance risk management. Ground infrastructure will enhance both mitigations where appropriate.

[2] Percentages do not sum to 100% as respondents were able to select more than one organisation type.

## EC Device Standards

Position 2. The overall performance of the EC system will be enhanced, where appropriate through a combination of interoperable airborne and ground-based systems that build on existing architecture.

## Airspace Architecture

Position 3. EC with an appropriate level of accuracy and performance set out in this document will aspire in the short term to support operations for the following:

- DAA by unmanned Aircraft
- Where equipped, position information to and from some ANSPs (or future UTMSP – policy under development)
- Traffic / situational awareness for manned aircraft
- Some limited interaction with traffic collision avoidance system (TCAS) for manned aircraft.

## Equipage requirements

### Manned aircraft specific

Position 4. Within non-segregated airspace, aircraft operating at <140kts (Kts) Indicated Air Speed (IAS) must use 1090 MHz ADS-B devices emitting a SIL and SDA of at least 1, such as (for example) some CAP 1391 devices. Alternatively, a TSO-C112 and TSO-C166 compliant transponder with extended squitter connected to TSO-C199 class B or TSO-C145 Global Navigation Satellite System (GNSS) source.

Position 5. Within non-segregated airspace, aircraft operating at >140kts IAS must use a Mode S transponder with ADS-B Extended Squitter functionality and SIL = 3, SDA = 2, typically a TSO-C112 and TSO-C166 compliant transponder connected to a TSO-C145 GNSS source.

Position 6. Any ADS-B – IN carriage for manned aircraft will remain a personal or organisational risk-based choice for the manned aircraft operator.

### Unmanned specific

Position 7. Within non-segregated airspace, UAS in the Specific Category operating BVLOS, must emit a 978 MHz UAT ADS-B signal. The device should function in accordance with the RTCA minimum performance standards DO-282B, (It is expected that DO-282C will be the standard from 2027) and of a minimum power yet to be set out within CAP 1391 supplementary amendment 2025/02. Emissions must meet SIL and SDA of at least 1.

Position 8. Specific category UAS operating BVLOS in non-segregated airspace must be equipped to receive ADS-B 1090 MHz and 978 MHz UAT in order to detect both manned and unmanned aircraft.

## Responsibility for EC Installation and Efficacy

Position 9. Aircraft operators, both manned and unmanned, are responsible for ensuring that their EC device is installed in accordance with the equipment manual and any CAA advice. Pilots must also ensure their device is functioning effectively.

Chapter 2

# The Role of EC in UK Airspace

## Position 1: Deconfliction within Non-segregated Airspace

2.1 Many respondents commented throughout the consultation that 'non-segregated' airspace was an undefined term. To reiterate, CAP 3140 outlined that 'This document does not set out detailed airspace structures or classifications for the use of EC. For the purpose of this document, the term 'non-segregated airspace' refers to the volumes of UK airspace where BVLOS UAS will be operating alongside other airspace users, with EC acting as a mitigation.'

2.2 Automatic Dependent Surveillance – Broadcast (ADS-B) Electronic Conspicuity (EC) enables aircraft to transmit their state vector and location information during flight. This technology allows operators to detect and respond to potential airspace conflicts, reducing the likelihood of aircraft proximity events and mid-air collisions. For Unmanned Aircraft Systems (UAS), EC serves to replace traditional see-and-avoid, which has known limitations due to the typical size of Specific Category UAS.

2.3 Tactical deconfliction provides real-time air-to-air collision avoidance, whereas strategic deconfliction offers a broader, pre-emptive approach, allowing conflict resolution before other aircraft come into close proximity. The consultation proposed that EC will be an enabler for both air-to-air tactical and strategic deconfliction within non-segregated airspace. Tactical deconfliction will be the primary mitigation, while strategic deconfliction will enhance risk management. Ground infrastructure will enhance both mitigations where appropriate.

2.4 Of respondents that provided a view, feedback was largely supportive, with 72.2% in favour of this policy position and 22.7% against it[3]. Most respondents recognised the safety benefits of EC, noting that it improves situational awareness for operators and supports effective deconfliction with other manned and unmanned aircraft. Furthermore, several respondents agreed that the implementation of a standardised EC system would provide an improvement on the current fragmented uptake of disparate systems.

2.5 Some respondents raised concerns that devices approved under CAP 1391 are impractical to use and have reliability limitations. These respondents noted that traditional see-and-avoid provides a more effective approach to deconfliction than relying on uncertified EC devices. Some respondents against the position argued that EC will only enable tactical and strategic deconfliction if all aircraft use certified EC devices. Some set out their concerns that in certain circumstances, an ADS-B device could increase their safety risk if the device is uncertified.

[3] To calculate respondents that provided a view, we have excluded responses that selected 'Don't know' or did not answer the question. This methodology has been applied throughout the consultation response.

2.6 Of the respondents who disagreed with this position, 87.9% were glider, paraglider, hang glider or paramotor pilots. Several of these respondents highlighted that EC would not support effective tactical deconfliction, as the limited manoeuvrability of their aircraft restricts their ability to avoid traffic. Several respondents noted that UAS cannot perform traditional see-and-avoid and expressed concern that relying solely on electronic conspicuity for their integration into non-segregated airspace would increase the safety risk for manned aircraft.

2.7 The CAA maintains the view that an interoperable EC system will be an enabler for both air-to-air tactical and strategic deconfliction within non-segregated airspace. EC will improve operational safety for the majority of manned and unmanned aircraft by increasing situational awareness. In addition, this position contributes to the CAA's strategic aim of promoting equitable airspace access by enabling UAS and manned aircraft to operate in non-segregated airspace. As part of our planned programme of testing, trials and research, we will continue to review EC devices approved under CAP 1391, as well as their efficiency and performance. We will assess the capability of these devices to enable tactical and strategic deconfliction between UAS and manned aircraft. We are aware that where close quarter operations take place (for example gaggles of unpowered aircraft and busy aerodrome circuit environments), EC can be distracting. Our Human Factors studies pointed to some pilots becoming desensitised to the number of alerts they receive in these busy environments. The CAA is committed to the development of EC policy to ensure it serves the needs of all airspace users.

Chapter 3

# EC Device Standards

## Position 2: Performance of the EC System

3.1 EC devices approved under CAP 1391 provide a cost-effective, accessible EC solution for aircraft operators. However, these devices have known limitations, for instance: antenna placement/masking, power class constraints and variability in detectability, which can reduce their overall effectiveness in supporting deconfliction. The Ground Infrastructure project is working on a set of capabilities to supplement reduced capability equipment (RCE)[4] that will enhance air-to-air electronic conspicuity and tactical deconfliction. These mitigations may be employed to support the integration of BVLOS operations by unmanned aircraft and manned aircraft, especially in higher risk airspace.

3.2 In the consultation, we proposed that the overall performance of the EC system will be enhanced, where appropriate, through a combination of interoperable airborne and ground-based systems that build on existing architecture. This position aims to ensure that the EC system remains interoperable with airborne and ground-based systems helping to enhance the performance of uncertified devices. The CAA is working on a Ground Infrastructure Concept of Operations document that will outline the capabilities that can be used.

3.3 Respondents were largely in favour of this position, with 71.7% agreeing with the position to enhance EC through airborne and ground-based systems. Many respondents agreed that doing this would give aircraft operators confidence in trusting the technology to support the types of deconfliction specified in Position 1. In addition, several respondents noted that 'interoperability' is essential to establishing an effective EC solution that maintains situational awareness. These respondents asserted that no single system could meet the diverse needs of all aircraft operators. However, respondents were supportive of using airborne and ground-based systems to integrate different transmission signals, such as ADS-B, FLARM and Pilot Aware.

3.4 Overall, 21.1% of respondents opposed this position. Some respondents raised concerns about the lack of clarity on who will fund the investment needed to upgrade existing architecture to support the EC system. The view put forward is that private enterprise has limited incentive to fund a national network of ground-based systems, meaning government investment would be necessary. This could delay the establishment of an effective EC system, considering the current fiscal constraints faced by the Government.

3.5 Other respondents outlined that the UK should align its EC approach with the

[4] RCE is a definition contained within ICAO doc 9871, setting an international standard for identifying equipment that met a subset of the SARPS, and that had a 'reduced capability'. Such equipment could include TSO-C199 and CAP 1391 devices

European Union Aviation Safety Agency (EASA). There is a concern that diverging from some of the EC standards that have been adopted in the EU would increase the cost and complexity for aircraft operators flying across international borders. Also, some respondents indicated that non-harmonised standards may result in overseas pilots flying into the UK with incompatible EC devices, potentially increasing operational safety risks in non-segregated airspace.

3.6 Our position remains that interoperable airborne and ground-based systems will be essential in some areas to enhance the overall performance of the EC system. We recognise the concerns raised around funding the development of existing architecture and divergence with international standards. Our aim is to further clarify these areas in future developments of EC policy and ground infrastructure policy documents.

Chapter 4

# Airspace Architecture

## Position 3: Enhancing Airspace Safety

4.1 The use of air-to-air and/or air-to-ground EC will play a crucial role in mitigating mid-air collision risk in low-risk environments; however, it is not sufficient as a standalone solution in higher-risk airspace. Additional policy concepts, such as detect-and-avoid (DAA), ground infrastructure and Unmanned Aircraft System Traffic Management (UTM), may be required in airspace where supplementary surveillance and Air Traffic Management (ATM) involvement could be necessary.

4.2 The consultation outlined the position that EC, with an appropriate level of accuracy and performance, will support the operations of the following system interactions in the short term:

- DAA by unmanned aircraft;
- Where equipped, position information to and from some Air Navigation Service Providers or Unmanned Aircraft System Traffic Management Service Providers (UTMSPs)[5];
- Traffic / situational awareness for manned aircraft; and
- Some limited interaction with Traffic Collision Avoidance Systems (TCAS) for manned aircraft.

4.3 Feedback on this position was broadly positive, with 66.7% of respondents agreeing with the position and 24.4% against it. Many respondents agreed that an increased uptake of EC will support the evolution of system interactions to improve situational awareness for manned and unmanned aircraft. For example, some respondents noted that traditional see-and-avoid is not an effective deconfliction solution as unmanned aircraft are too small to be detected by manned pilots. Therefore, EC systems that support tactical DAA are essential to enabling Beyond Visual Line of Sight (BVLOS) UAS operations in non-segregated airspace. Nevertheless, these respondents highlighted that EC and DAA systems must meet a robust level of accuracy and reliability as UAS operated by remote pilots are responsible for avoiding manned aircraft.

4.4 Several respondents argued that adopting EC should not result in a uniform, one-size-fits-all solution resembling a Traffic Collision Avoidance System (TCAS) applied across all aircraft types. These respondents outlined that TCAS is designed for higher-performance, commercially operated aircraft, and implementing mandatory TCAS requirements would be disproportionate for lightweight aircraft. In addition, respondents raised concerns that integrating lower-power EC devices with TCAS could lead to excessive alerts and traffic display distractions/clutter for manned aircraft operators to manage.

[5] The policy outlining the role and function for UTMSPs is under development.

4.5 We continue to hold the position that EC will support the implementation of system interactions in the near term. Our planned programme of testing, trials and research will enable us to analyse the impact of EC on other emerging policy concepts, such as DAA, UTM and ground infrastructure. Our longer-term ambition will be to develop a holistic set of policies that enable all manned and unmanned aircraft operators to fly safely as UK airspace evolves. Our policy does not include any plans to implement any TCAS systems for light aircraft. However, as set out, there are various, limited interactions possible with ADS-B OUT and some TCAS systems.

Chapter 5

# Equipage Requirements

## Position 4: Equipage for Manned Aircraft Operating at <140Kts

5.1 The consultation proposed that within non-segregated airspace, manned aircraft operating at <140kts (Kts) IAS must use 1090 MHz ADS-B devices emitting a SIL and SDA of at least 1, such as (for example) some CAP 1391 devices, alternatively a TSO-C112 and TSO-C166 compliant transponder with extended squitter connected to TSO-C199 class B or TSO-C145 GNSS source. This position aims to implement a proportionate, cost-effective solution for slow-moving aircraft. Test, trials and validation will test a mix of encounters to confirm the adequacy of detection and alerting time.

5.2 Respondents were largely unsupportive of the proposed EC equipage requirements for slower moving aircraft, with 74.3% of those who provided a view opposing this position. A significant proportion of respondents viewed this position as disproportionate due to the costs associated with equipping EC devices to their aircraft. Levels of support varied between the General Aviation community and all other respondents, with 19.0% and 41.4% supporting the position respectively. Many respondents from the General Aviation community argued that the costs of EC equipage should fall on the UAS sector, as UAS operators are the primary beneficiaries of EC implementation. Other respondents in favour of the position outlined the potential safety benefits associated with the implementation of EC increasing situational awareness.

5.3 Of the respondents who disagreed with this position, 87.9% were glider, paraglider, hang glider or paramotor pilots. Several of these respondents against the position raised concerns around the reliability of the EC equipment that falls within the category of this position. Respondents argued that contingency provisions would be required to mitigate the risk from potential equipment failures. Also, incorrect installation by less-experienced pilots could compromise the overall safety of operations if pilots falsely assume that all airspace users fly with EC enabled. Some respondents who were generally supportive of the position in principle stated that there needs to be further consideration of the method of setting speed limits with RCE equipment. Some respondents mentioned that Indicated Airspeed is not the correct metric. Quality indicators were also referenced, with some setting out research that commercial off-the-shelf GNSS sources are of sufficient quality and integrity. (i.e. Source Integrity Level and System Design Assurance). There were concerns about the practicality around the size, weight and power requirements of an ADS-B EC device, especially when considering hang glider and paraglider airframes.

5.4 Conversely, many fixed-wing GA pilots were concerned that a lack of device interoperability to maintain situational awareness would put their operations at risk, and were therefore in favour of an ADS-B equipage standard. A smaller number of air sport pilots also agreed with this position.

5.5 We maintain the position that there should be a proportionate, cost-effective ADS-B EC solution for slow-moving aircraft; however, we consider that there will need to be further clarification in future iterations of EC policy. As part of the planned testing, trials and research programme, we will seek to validate the quality of emission from a cockpit mounted ADS-B RCE device. We will ensure they remain proportionate to the safety risk associated with slow-moving aircraft and enable rapid detection in encounters with unmanned aircraft. We will also aim to clarify the speed requirements that define slow-moving aircraft, for example, whether the IAS is based on Velocity Never Exceed (VNE) or Design Cruising Speed, or some other metric. We will also consider any potential exemptions from the EC equipage requirements for airspace users with a justifiable safety case (e.g. military aircraft).

## Position 5: Equipage for Manned Aircraft Operating at >140Kts

5.6 Manned aircraft operating at higher speeds require higher-performance EC devices, primarily capable of providing extended detection range to support timely avoidance manoeuvres. In addition, certified EC devices are necessary as altitude reporting is less reliable in faster aircraft. This is due to static pressure variations in the cockpit and damage risk from collisions, as higher speeds increase impact energy.

5.7 The consultation proposed that within non-segregated airspace, aircraft operating at >140kts IAS must use a Mode S transponder with ADS-B Extended Squitter functionality and SIL = 3 and SDA = 2, typically a TSO-C112 and TSO-C166 compliant transponder connected to a TSO-C145 GNSS source. This position aims to ensure that the safety risk of pilots operating at faster speeds is mitigated by higher-performance EC devices.

5.8 Fewer respondents were against the proposed EC equipage requirements for fast-moving aircraft than in Position 4, with 64.4% opposing the position. Support for this position varied between the General Aviation community (22.3% supportive) and all other respondents (43.1% supportive). Several of those against the position suggested that the Source Integrity Level (SIL) and System Design Assurance (SDA) requirements were too stringent and would impose disproportionate EC equipage costs on airspace users. There were some comments around the relationship between certification of equipment and the quality indicators emitted especially around US ‘experimental’ requirements, along with previous studies around the use of uncertified GNSS sources. Also, some respondents again outlined that the Indicated Air Speed (IAS) requirement is not an appropriate metric to differentiate between slow-moving and fast-moving aircraft. They recommended using a more specific measure (e.g. Never Exceed Speed) to ensure a clearer and more consistent classification approach. In addition, respondents raised concerns that the >140kts threshold was too low to justify the requirement for higher-performance EC devices.

5.9 Of respondents who disagreed with this position, 87.6% were glider, paraglider, hang glider or paramotor pilots. Some of these respondents stated that the onus should be on Unmanned Aircraft Systems (UAS) to detect-and-avoid manned aircraft with high accuracy. Other respondents highlighted that EC equipage requirements would support safer operations through enhancing deconfliction between manned aircraft and enabling unmanned aircraft to avoid manned aircraft.

5.10 We are proposing to retain this position to implement higher-performance EC equipage requirements for aircraft operating at faster speeds. However, we will continue to refine the specific requirements in future iterations of the EC Technical Concept of Operations. In line with our approach to Position 4 on emission quality validation, we will seek to validate the SIL and SDA requirements, taking into account feedback from respondents. Cognisant of the requirements in UK Regulation (EU) No 1207/2011 relating to aircraft speed and use of transponders, we will aim to clarify the IAS requirements that define fast-moving aircraft and any necessary exemptions from the EC equipage requirements. It is essential that unmanned aircraft have a method of detecting manned aircraft in non-segregated airspace. Expecting unmanned aircraft to detect manned aircraft without an EC solution is not currently possible.

## Position 6: ADS-B – IN Carriage for Manned Aircraft

5.11 Automatic Dependent Surveillance – Broadcast (ADS-B) is a surveillance technique and a form of EC which enables aircraft to automatically share data from their navigation systems to enable other aircraft and Air Traffic Management (ATM) to detect and track them. ICAO describes ADS-B OUT as the broadcast of this data from an aircraft, and ADS-B IN is the ability to receive (not display) that data, enhancing overall situational awareness[6].

5.12 In the consultation, we proposed that any ADS-B IN carriage for manned aircraft will remain a personal or organisational choice for the manned aircraft operator. We considered several reasons to support our rationale to maintain this requirement as optional. For example, there are practical limitations for some manned aircraft types to install ABS-B IN display equipment, including inconsistencies in the usability of uncertified display technologies, cost, practicality and challenges in standardising see-and-avoid procedures.

5.13 Of respondents who provided a view, there was broad support for this position, with 65.5% in favour of this position. Many respondents agreed that ADS-B IN should not be mandated due to concerns around the technology creating distractions in certain circumstances that could reduce overall safety for some airborne operators. Other respondents noted the difficulty of equipping ADS-B IN carriage for some aircraft types (e.g. hang gliders and paragliders) due to the weight of the devices and the lack

[6] International Civil Aviation Organisation (ICAO) Annex 10, Volume 4

of cockpit space to mount displays.

5.14 Overall, 27.0% were against this position. Some of these respondents argued that ABS-B IN should be a mandatory requirement as see-and-avoid is not a robust solution to maintaining situational awareness due to human perception limits. Also, some respondents expressed concerns about the potential safety implications of some manned aircraft operating without ADS-B IN capability. Mixed equipage could lead to an incomplete picture and create a false sense of situational awareness across airspace users, resulting in the increased risk of unpredictable avoidance manoeuvres in close proximity events.

5.15 Support varied between the General Aviation community and all other respondents, with 66.8% and 47.3% supporting the position respectively. Some respondents from the General Aviation community raised concerns around the cost of purchasing and installing ADS-B IN display equipment. Of respondents that agreed with this position, 78.6% were glider, paraglider, hang glider or paramotor pilots. Other respondents stated that ADS-B IN carriage should be mandatory due to the limitations of manned aircraft operators identifying smaller aircraft visually, including Unmanned Aircraft Systems (UAS).

5.16 We are proposing to retain this position and maintain that ADS-B IN carriage requirement is optional for manned aircraft operators. We recognise further policy work is required to test the feasibility of mandating the ADS-B IN requirement for all manned aircraft operator types. As part of the planned testing, trials and research programme, we are planning to gathering data on the functionality of ADS-B IN carriage equipment and human factors to continue developing this position, with a view to producing training materials to support the use of ADS-B IN.

5.17 In light of the recent conclusions for the investigation on the mid-air collision over Washington DC on the 29 January 2025 (DCA25MA108), further consideration may be given to this technical position.

## Position 7: Emitting Requirements for UAS

5.18 UAS operating BVLOS must emit an EC signal to enable their detection by other unmanned and manned aircraft within their operational airspace. Manned aircraft operators that choose to install the appropriate ADS-B IN equipment can receive and display UAS emissions when operating in the same airspace. UAS emissions may also be used by ground-based systems to support other system interactions, including Unmanned Aircraft System Traffic Management (UTM) services.

5.19 The consultation proposed that within non-segregated airspace, UAS operating BVLOS must emit a 978 MHz Universal Access Transceiver (UAT) ADS-B signal. The device should function in accordance with the RTCA minimum performance standards DO-282B and of a minimum power yet to be set out within CAP 1391 (supplementary amendment 2025/02). Emissions must meet SIL and SDA of at least

1. The position aims to set the technical preconditions in which UAS can be electronically conspicuous and thus enable operations in the same airspace as manned aircraft operators.

5.20 Respondents were broadly supportive of the position, with 68.3% in favour and 19.7% against the position. Some respondents agreed that requiring UAS to emit an EC signal would help to increase visibility and overall situational awareness for other UAS pilots and manned aircraft operators with ADS-B IN. Nevertheless, respondents emphasised that EC devices must meet high standards to prevent inaccurate signals potentially compromising operational safety. Furthermore, a lot of respondents stated that the onus should be on UAS operators/pilots for collision avoidance regardless of EC equipage.

5.21 Those who opposed this position raised concerns that EC systems need to be fully interoperable for manned and unmanned aircraft, and that introducing a new frequency on 978 MHz could fragment the EC environment which largely uses 1090 MHz. Without interoperability, airspace users may not detect one another consistently, limiting the overall effectiveness of the EC system.

5.22 Support for this position was similar between the General Aviation community (68.5% supportive) and all other respondents (66.1% supportive). In addition, 67.5% of unmanned aircraft pilots/operators who provided a view were in favour of this position as well. Overall, there is broad consensus between different airspace users that UAS must emit an EC signal to enable their detection and to avoid other aircraft within their operational airspace.

5.23 Considering this consultation feedback, we are proposing to maintain the position to require UAS operating BVLOS to emit a 978 MHz UAT ADS-B signal. By adopting 978 MHz, we are reducing the burden on the already congested 1090 MHz band. In future iterations of the EC Technical Concept of Operations, we will seek to finalise the minimum performance standards, minimum power level and quality indicators. More detail on what UAS operators/pilots need to carry is described in both the CAP 3040 Atypical Air Environment Policy Concept and also the Supplementary Amendment to CAP 1391.

## Position 8: Receiving Requirements for UAS

5.24 UAS operating BVLOS must be able to receive an EC signal to perform detect-and-avoid procedures in volumes of airspace where other manned aircraft and BVLOS UAS may be operating. ADS-B IN on both 1090 MHz and 978 MHz is essential to enable deconfliction with both manned and unmanned aircraft by human intervention or automatic systems. This requirement will enable UAS remote pilots to avoid the risk of collision with any manned aircraft as per the operator responsibilities set out in the regulations[7].

5.25 In the consultation, we proposed that UAS operating BVLOS in non-segregated airspace must be equipped to receive ADS-B 1090 MHz and 978 MHz UAT to detect both manned and unmanned aircraft. The position aims to ensure that BVLOS UAS can integrate safely with all airspace users while maintaining compliance with detect-and-avoid requirements.

5.26 Of respondents that provided a view, there was large support for this position, with 76.9% agreeing and 15.7% opposing it. Most respondents supported the view that UAS operating BVLOS must be able to receive an EC signal to enable detect-and-avoid. As with Position 7, they agreed that the onus should be on the UAS remote pilot to avoid the risk of collision with other manned aircraft. Also, many respondents agreed with the principle that UAS operating BVLOS must be able to receive EC signals that are interoperable with both unmanned aircraft and manned aircraft. A higher proportion of unmanned aircraft pilots/operators agreed with this position compared to Position 7 (77.5% supportive). Many expressed the view that UAS operators/pilots are more concerned with having ADS-B IN to support DAA than their unmanned aircraft being electronically conspicuous.

5.27 However, a lot of responses raised concerns that the ADS-B IN requirement on UAS does not include other EC technologies carried by manned aircraft such as FLARM, Pilot Aware and other non-ADS-B technologies. Some respondents raised concerns that this could create operational safety risks for manned aviation operators that do not emit an ADS-B signal. Of the respondents who disagreed with the position, 71.7% were paraglider pilots, hang glider pilots or paramotor pilots. Many of these respondents noted that it is impractical for them to carry such devices on slow lightweight non-powered aircraft, and therefore the position fails to mitigate the risk of collisions with unmanned aircraft. Some other comments mentioned the need for multiple mitigations, and not to rely on a single mitigation, in this case EC, as this would fail to form a robust safety argument.

5.28 We are proposing to retain this position to require UAS operating BVLOS in non-segregated airspace to receive EC signals. We maintain these EC signals must be ADS-B on both 1090 MHz and 978 MHz to enable deconfliction with both manned and unmanned aircraft. We made a joint decision with the Department for Transport (DfT) to use this aviation protected spectrum as it is the globally recognised standard for EC[8]. The current direction is that UAS operating BVLOS will not be required to receive additional signals, such as those that operate using ISM frequencies.

[7] UAS.SPEC.060 (3) (b) in UK Regulation (EU) 2019/947 requires the remote pilot to avoid any risk of collision with any manned aircraft.

[8] Joint Statement from CAA/DfT on the Development of a National Standard for Electronic Conspicuity | UK Civil Aviation Authority

Chapter 6

# Responsibility for EC Installation and Efficacy

## Position 9: Installing and Operating EC Device Effectively

6.1 The effectiveness of EC relies on proper installation and operation. Our research has identified that incorrect installation, particularly poor antenna placement, can significantly reduce the performance of EC devices. Correct installation is crucial for Unmanned Aircraft Systems (UAS), where reliance on EC for situational awareness is critical to safe BVLOS operations. For General Aviation and commercial operators, improper installation and operation could lead to suboptimal signal propagation to and from EC equipment, limiting the operational safety of airspace integration, as distances between aircraft when taking avoiding action may be reduced.

6.2 Our consultation proposed that aircraft operators, both manned and unmanned, are responsible for ensuring that their EC device is installed in accordance with the equipment manual and any forthcoming CAA advice. Pilots must also ensure their device is functioning effectively. This position ensures that all aircraft operators are accountable for installing and operating EC equipment correctly to support reliable system performance. This position is device agnostic. The term ‘installed’ refers to the positioning and orientation of an EC device - it is not referring to any formal certification of equipment.

6.3 The majority of respondents were in support, with 73.6% agreeing with the position and 20.5% opposing it. Most respondents broadly agreed with the principle that aircraft operators should be responsible for following guidance to correctly install and operate EC devices. Nevertheless, several respondents outlined that the CAA must provide sufficient and user-friendly guidance to facilitate the equipage of EC technology. The guidance must consider all manned and unmanned aircraft types, accommodating different cockpit setups, mounting options and power supply arrangements.

6.4 Some respondents raised concerns that there is currently a lack of clear guidance on the procedures to test and verify that EC equipment is functioning correctly. Providing guidance on how often EC equipment should be tested and the methods for verifying the integrity of transmission signals would give operators greater confidence that their devices are performing as intended. In addition, some respondents argued that further consideration is needed to manage allowances for exceptional circumstances. For example, consultation feedback highlighted the need for clarity on the actions a pilot should take if their EC device fails either mid-flight or on the ground before departure. Respondents stated that this guidance is essential given known technical issues with some EC devices, including the impact of terrain shadowing and human body attenuation of transmission signals.

6.5 We are maintaining the position that unmanned and manned operators are responsible for ensuring that their EC device is installed in accordance with the equipment manual and any forthcoming CAA advice. We are committed to developing future iterations of the Technical Concept of Operations and clear and user-friendly guidance on installing and operating EC devices. Our aim will be to ensure guidance is accessible and comprehensive, enabling different airspace users to understand installation and operation best practices. In addition, we are planning to implement a structured training and awareness programme to support aircraft operators to install and operate EC correctly. For example, our current direction is to update pilot training syllabuses to include modules dedicated to flying with EC. This supports AMS objectives on integrating diverse users and aircraft capability evolution and will be progressed alongside related policy work. The Ground Infrastructure project is exploring methods of providing a periodic testing service to ensure the efficacy of airborne EC.

Chapter 7

# Call for Evidence on the EC Mandate

## EC Mandate

7.1 Alongside the consultation on the Technical Concept of Operations, we issued a separate Call for Evidence to gather early views, experience and relevant information to inform the potential future development of policy on an Electronic Conspicuity mandate for lower airspace users in the UK.

7.2 The Call for Evidence was exploratory and pre-policy. It did not seek views on a defined mandate or set out specific policy positions. Its purpose was to inform the CAA's understanding of the operating environment, the diversity of airspace users and the range of issues that may need to be considered as part of any future policy development. Responses to the Call for Evidence were reviewed at a high level and analysed thematically. The principal issues raised across the responses. This summary does not indicate policy positions, conclusions or decisions. The development of any future mandate options would be evidence led.

7.3 **Safety and situational awareness**: many respondents framed their comments around safety in lower airspace and the potential role of Electronic Conspicuity in supporting situational awareness. Some responses highlighted perceived benefits in improving visibility of other airspace users, particularly in mixed traffic environments or where visual acquisition alone may be challenging. Other responses emphasised the continued importance of see-and-avoid principles and raised concerns about distraction, human factors or over-reliance on electronic information. Views varied on how EC should complement, rather than replace, existing operational practices.

7.4 **Diversity of aircraft types and operations**: a significant theme related to the diversity of aircraft and operations in lower airspace. Respondents frequently highlighted differences between powered and unpowered aircraft, cockpit-based and cockpit-less operations, and variations in speed, altitude, endurance and operating environment. Many responses stressed that any future policy would need to take account of this diversity and avoid unintended or disproportionate impacts on particular user groups. Lightweight and foot-launched aircraft were commonly cited as facing distinct practical and operational considerations.

7.5 **Proportionality, cost and practicality**: cost, affordability and practical implementation considerations featured prominently across responses. Respondents raised issues relating to purchase price, installation, operation and maintenance of EC equipment, particularly where costs may be high relative to aircraft value or operating budgets. Practical considerations included power availability, weight and space constraints, environmental exposure and ease of use. These points were often framed in terms of proportionality and feasibility rather than opposition to EC in principle.

7.6 **Technology capability, standardisation and interoperability**: many respondents commented on the capabilities and limitations of existing EC technologies. Issues raised included performance at low level, reliability in close proximity operations, information overload and signal interference. Some respondents expressed concerns around GNSS jamming and spoofing, as well as spoofing ADS-B signals. Standardisation and interoperability were also raised as considerations, including compatibility between different systems and alignment with international approaches. Some respondents expressed concern about the long-term suitability of specific technologies in a rapidly evolving technical environment.

7.7 **Evidence, experience and further analysis**: respondents referred to a range of evidence sources, including operational experience, trials, position papers from representative organisations and previous studies. Other respondents indicated limited awareness of existing evidence and suggested that further testing, data collection and engagement would be beneficial to inform future policy considerations. Across responses, there was broad recognition of the importance of evidence-based policy development and continued engagement as understanding of operational impacts evolves.

7.8 The evidence gathered through this Call for Evidence will inform our ongoing work to scope issues, identify areas requiring further analysis and shape the design of a future public consultation on a potential Electronic Conspicuity mandate. In particular, it will help convey the framing of consultation questions and which impacts require focused consideration. A separate public consultation on defined policy positions relating to a potential EC mandate will be published in due course. That consultation will invite views on specific options and approaches.

Chapter 8

# General Comments

8.1 We recognise the strength of feeling expressed by some respondents, and we also acknowledge that there are differing views across the aviation community on the future direction of EC equipage in the UK. As shown in the analysis in Appendix A, the majority of respondents expressed general support for the use of EC in some form, although there was significant variation in views on how it should be implemented and applied across different types of operations.

8.2 In addition to comments on the specific positions set out in the EC Technical Concept of Operations, many respondents raised broader issues that cut across multiple positions. While a number of these themes are addressed in the relevant chapters above, some of these recurring points are summarised below.

8.3 Human factors considerations featured strongly throughout responses. Many respondents emphasised the importance of appropriate training and guidance in the interpretation and use of EC information, whether presented in cockpit systems or used by unmanned aircraft operators. Respondents also highlighted the need to recognise the current limitations of EC, including variability in reliability and effectiveness, and the risk of over reliance without adequate understanding of those limitations.

8.4 Respondents from across the aviation sector, including rotary wing operations, sport and recreational aviation, unmanned aircraft operations and other specialist activities, described the specific challenges associated with their operating environments. These responses highlighted that carriage, installation and use of EC may have differing implications depending on aircraft type, operating profile and practical constraints.

8.5 Concerns were raised by many respondents regarding the resilience of GNSS and ADS-B, including the risks associated with jamming and spoofing. While the risk of GNSS jamming and spoofing is considerable to EC, it applies across the entire aviation sector (and other critical national infrastructure), and forms part of a much wider scope of work outside the confines of this document. Separately, a number of unmanned aircraft operators commented on privacy considerations, particularly in relation to operations such as medical deliveries and other sensitive use cases.

8.6 The Ministry of Defence reviewed the Technical Concept of Operations and provided a detailed set of comments. Feedback reflected the need to retain operational and training freedom, while ensuring that overall system risk continues to decrease as new capabilities and concepts are introduced.

8.7 Several respondents raised issues relating to CAP 1391, including the need for the document to be updated. Comments included calls for clearer minimum performance expectations, including power related considerations, and improvements to the structure and clarity of quality indicator requirements.

8.8 These cross-cutting issues will be taken forward through a combination of further research and trials, development of guidance and training material, future policy updates and continued collaboration with operators and other stakeholders. This work will be evidence led and proportionate, and will inform future decisions on EC policy and associated guidance.

Chapter 9

# Next Steps

## What happens after the consultation response?

9.1 The feedback received through this consultation will now be used to inform our approach to validating our positions through ongoing test, trials and research. We will also use the feedback to inform the ongoing development of the EC policy and other associated policy documents, such as detect-and-avoid (DAA), Unmanned Aircraft Systems Traffic Management (UTM) and ground infrastructure.

9.2 Responses have highlighted several areas that would benefit from additional clarification, refinement or further consideration to ensure the positions are fully understood and implemented effectively. These areas will be taken forward as part of the next phase of work to develop EC policy further. This will include incorporating changes arising from consultation feedback alongside evidence and insights generated through technical testing and operational trials planned during 2026.

9.3 Collectively, this work will inform the development of a revised version of the EC policy set out in CAP 1391. Subject to the outcomes of these activities and wider programme dependencies, the CAA expects to publish an updated version of the EC Technical Concept of Operations in late 2026 or early 2027. This will also inform the publications of associated Concept of Operations or policy documents within the wider Airspace Modernisation programme, such as DAA, UTM and ground infrastructure.

9.4 This consultation response document should be considered alongside the current Concept of Operations, drawing attention to the areas where stakeholder feedback has signalled a need for further development and where the CAA has set out its proposed next steps.

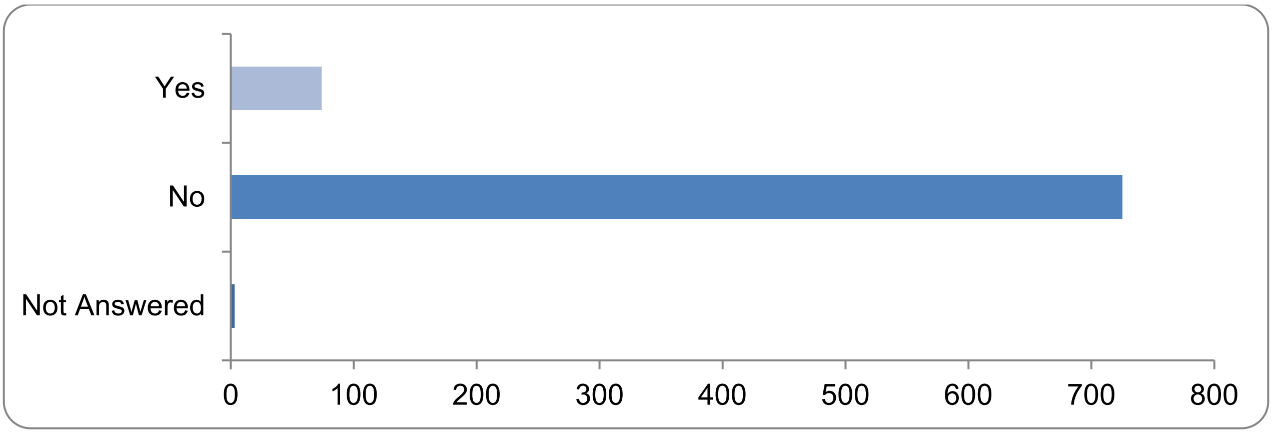
9.5 The CAA remains committed to ongoing engagement with stakeholders as this work progresses. Further opportunities for input will be provided as part of future consultations and programme activity, including the planned consultation on the proposed Electronic Conspicuity mandate.

Appendix A

# Quantitative Breakdown of Consultation Responses

### Are you responding in an official capacity on behalf of an organisation?

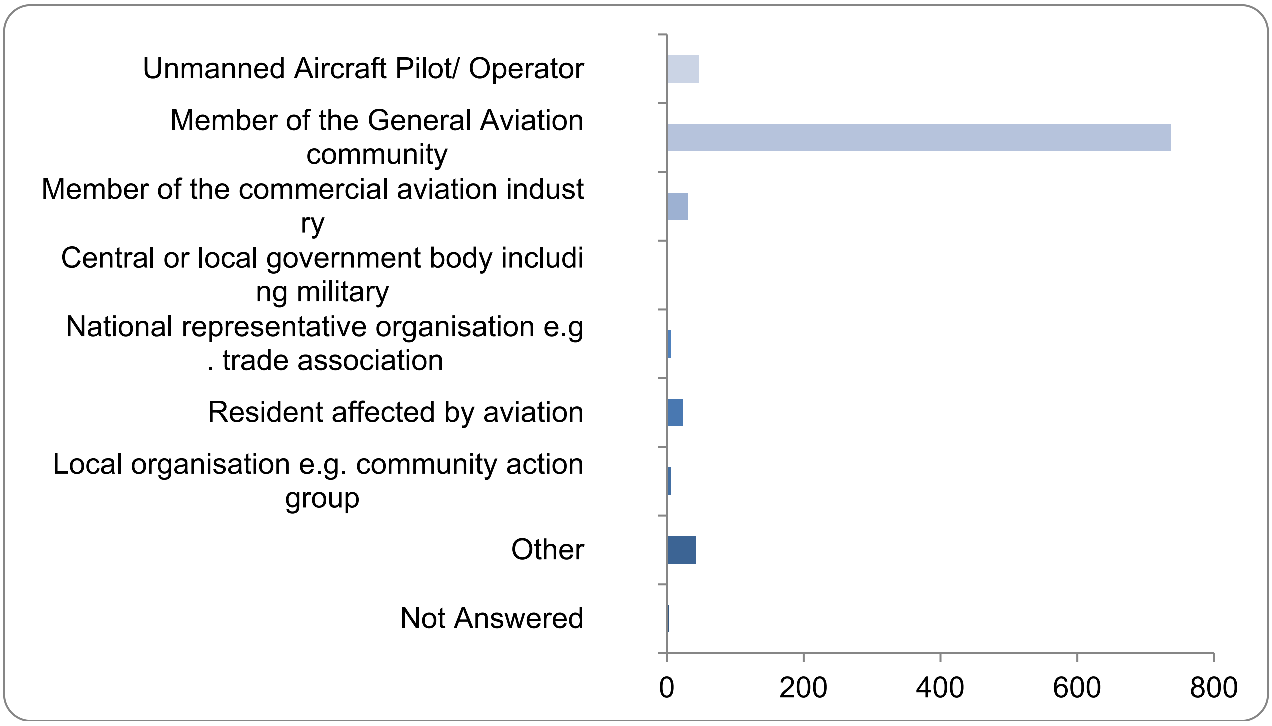
There were 799 responses to this part of the question.




| Option | Total | Percent |
|---|---|---|
| **Yes** | 74 | 9.23% |
| **No** | 725 | 90.40% |
| **Not Answered** | 3 | 0.37% |

### Are you answering as:

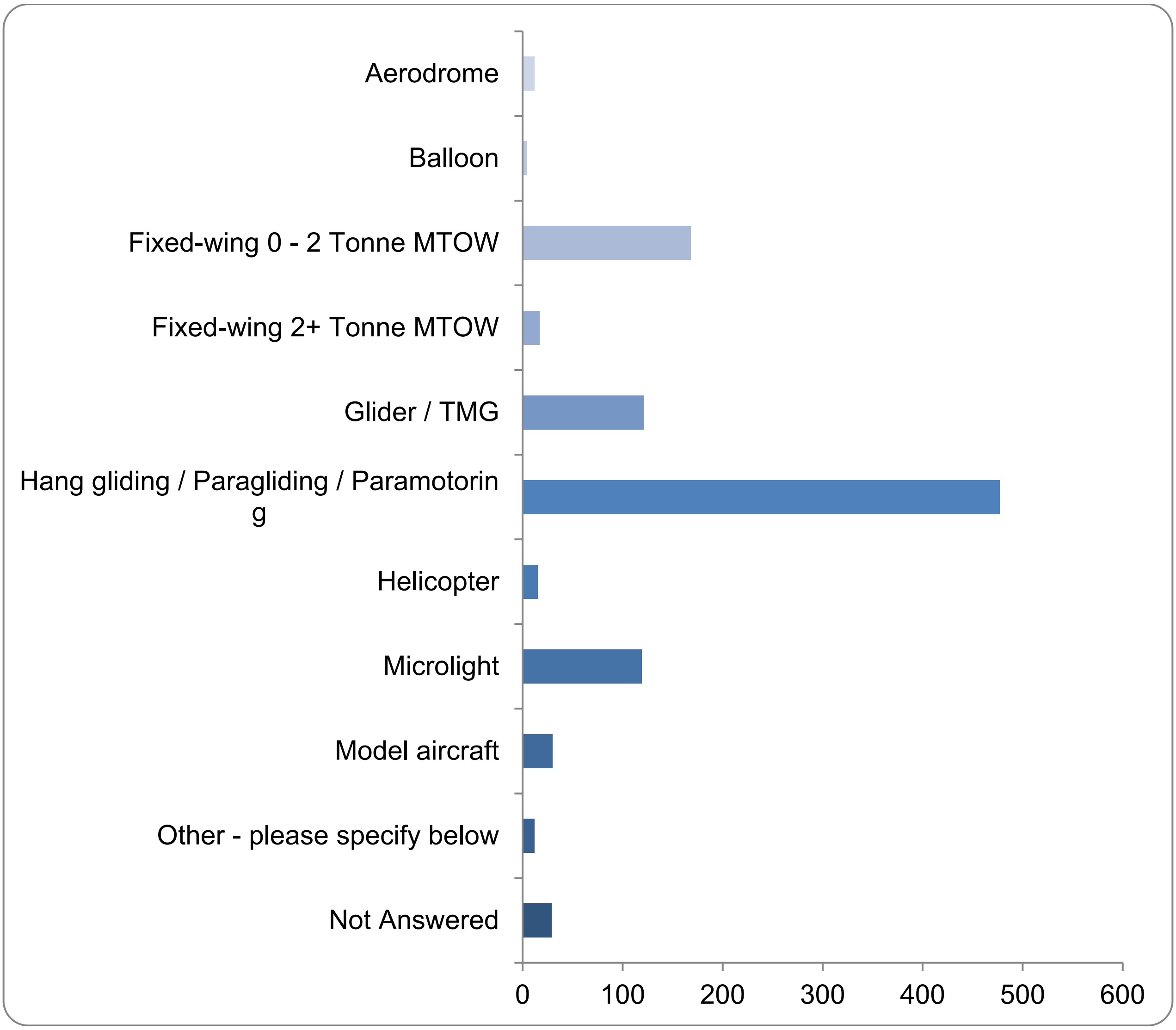
There were 799 responses to this part of the question.



| Option | Total | Percent |
|---|---|---|
| **Unmanned Aircraft Pilot/ Operator** | 47 | 5.86% |
| **Member of the General Aviation community** | 737 | 91.90% |
| **Member of the commercial aviation industry** | 31 | 3.87% |
| **Central or local government body including military** | 2 | 0.25% |
| **Elected political representative e.g. councillor or MP** | 0 | 0.00% |
| **National representative organisation e.g. trade association** | 6 | 0.75% |
| **Resident affected by aviation** | 23 | 2.87% |
| **Local organisation e.g. community action group** | 6 | 0.75% |
| **Other** | 43 | 5.36% |
| **Not Answered** | 3 | 0.37% |

### If you are a member of the General Aviation community, which sub-category are you answering as?

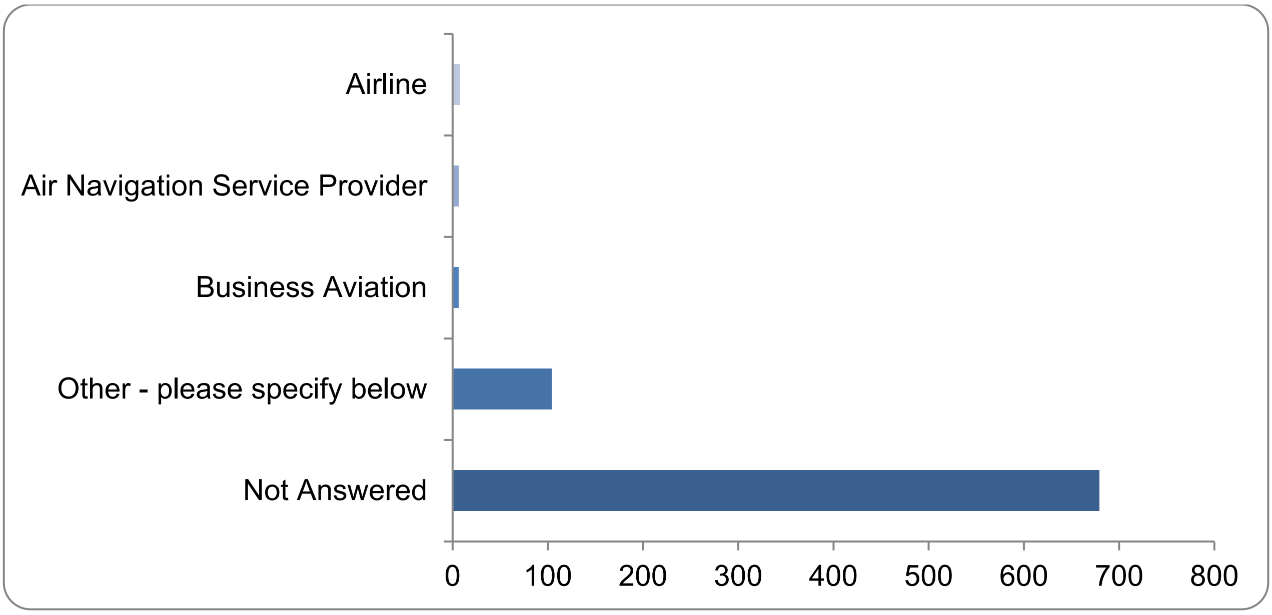
There were 773 responses to this part of the question.



| Option | Total | Percent |
|---|---|---|
| **Aerodrome** | 12 | 1.50% |
| **Balloon** | 4 | 0.50% |
| **Fixed-wing 0 - 2 Tonne MTOW** | 168 | 20.95% |
| **Fixed-wing 2+ Tonne MTOW** | 17 | 2.12% |
| **Glider / TMG** | 121 | 15.09% |
| **Hang gliding / Paragliding / Paramotoring** | 477 | 59.48% |
| **Helicopter** | 15 | 1.87% |
| **Microlight** | 119 | 14.84% |
| **Model aircraft** | 30 | 3.74% |
| **Other - please specify below** | 12 | 1.50% |
| **Not Answered** | 29 | 3.62% |

### If you are from the commercial aviation industry, which sub-category are you answering as?

There were 123 responses to this part of the question.



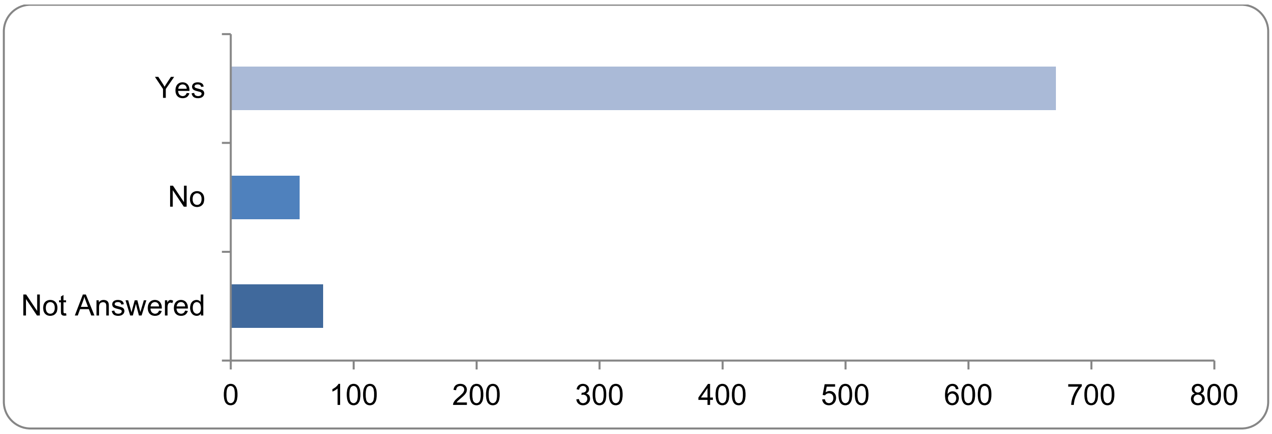

| Option | Total | Percent |
|---|---|---|
| **Airline** | 8 | 1.00% |
| **Airport** | 0 | 0.00% |
| **Air Navigation Service Provider** | 6 | 0.75% |
| **Business Aviation** | 6 | 0.75% |
| **Other - please specify below** | 104 | 12.97% |
| **Not Answered** | 679 | 84.66% |

### What, if any, EC Device do you currently use?

There were 751 responses to this part of the question.

### Have you read the Initial Technical Concept of Operations for EC before completing this consultation?

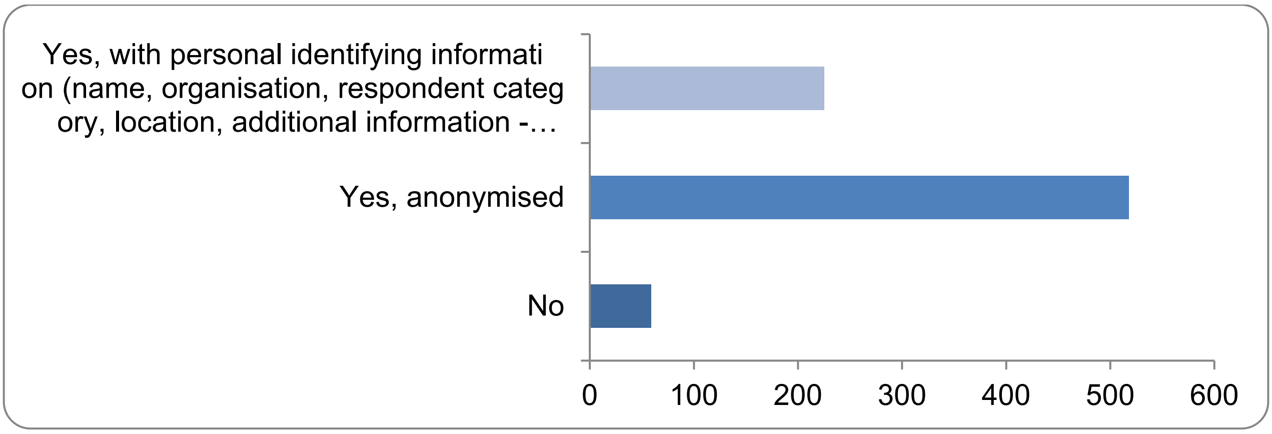
There were 727 responses to this part of the question.




| Option | Total | Percent |
|---|---|---|
| **Yes** | 671 | 83.67% |
| **No** | 56 | 6.98% |
| **Not Answered** | 75 | 9.35% |

### Do you consent to your response being published on this consultation website?

There were 802 responses to this part of the question.

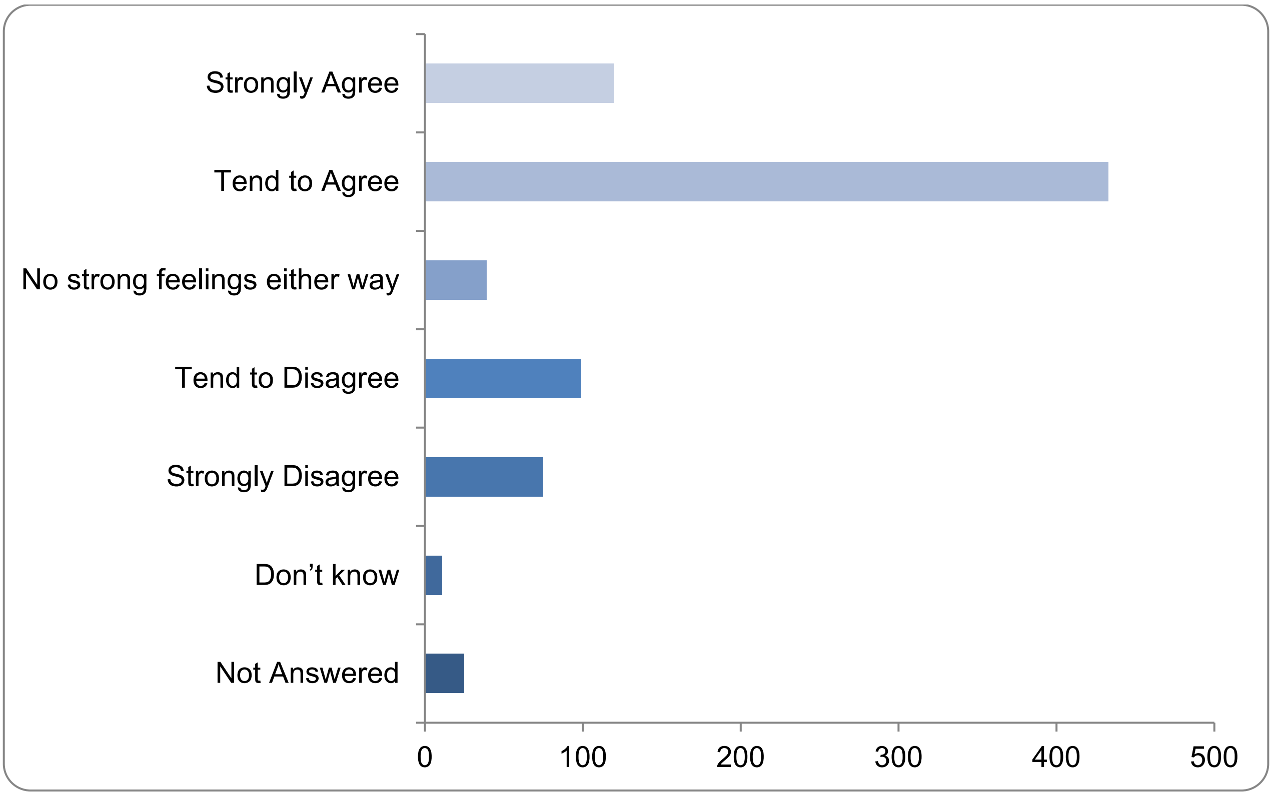



| Option | Total | Percent |
|---|---|---|
| **Yes, with personal identifying information (name, organisation, respondent category, location, additional information - please note your email address will NOT be published if you choose this option)** | 225 | 28.05% |
| **Yes, anonymised** | 518 | 64.59% |
| **No** | 59 | 7.36% |
| **Not Answered** | 0 | 0.00% |

**Position 1. EC will be an enabler for both air-to-air tactical and strategic deconfliction within non-segregated airspace. Tactical deconfliction will be the primary mitigation, while strategic deconfliction will enhance risk management. Ground infrastructure will enhance both mitigations where appropriate.**

**To what extent, if at all, do you agree or disagree that this position supports the two primary objectives of this Initial EC Technical ConOps?**

There were 777 responses to this part of the question.

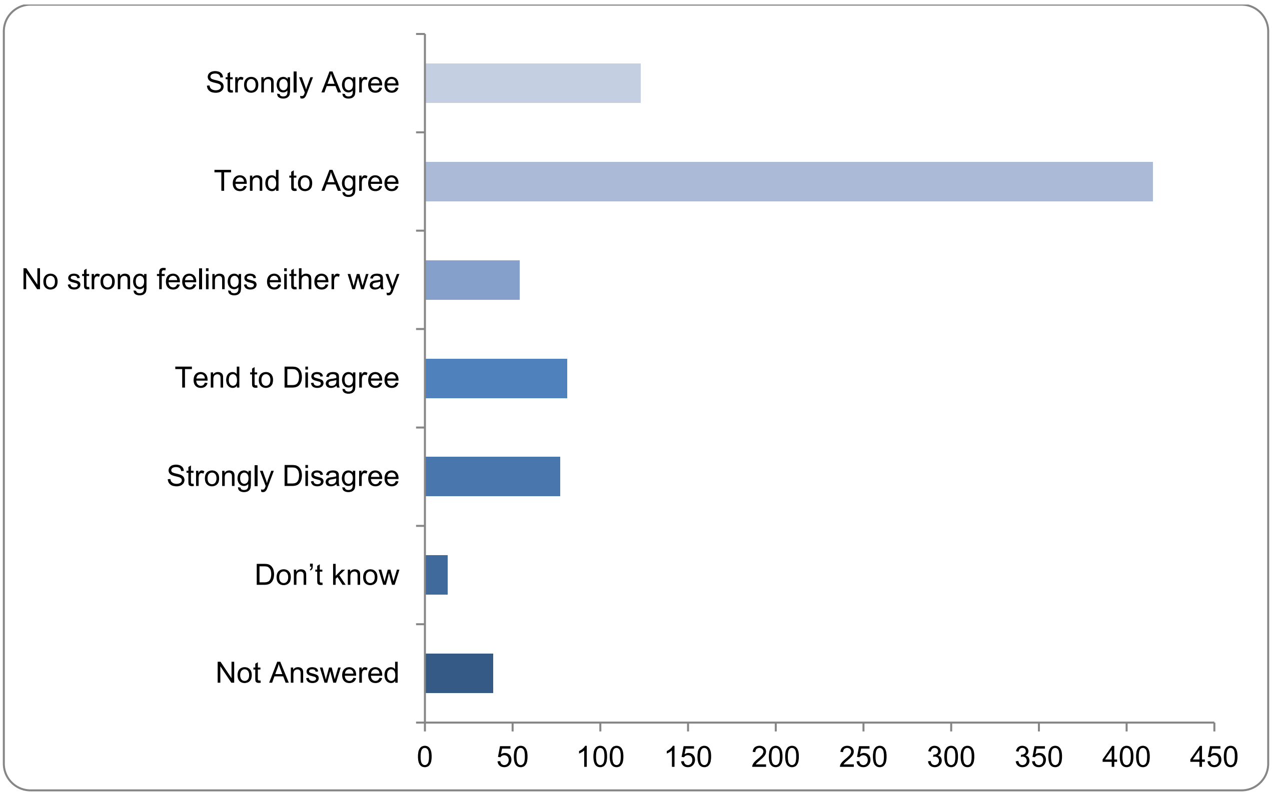



| Option | Total | Percent |
|---|---|---|
| **Strongly Agree** | 120 | 14.96% |
| **Tend to Agree** | 433 | 53.99% |
| **No strong feelings either way** | 39 | 4.86% |
| **Tend to Disagree** | 99 | 12.34% |
| **Strongly Disagree** | 75 | 9.35% |
| **Don't know** | 11 | 1.37% |
| **Not Answered** | 25 | 3.12% |

**Position 2. The overall performance of the EC system will be enhanced, where appropriate through a combination of interoperable airborne and ground-based systems that build on existing architecture.**

**To what extent, if at all, do you agree or disagree that this position supports the two primary objectives of this Initial EC Technical ConOps?**

There were 763 responses to this part of the question.



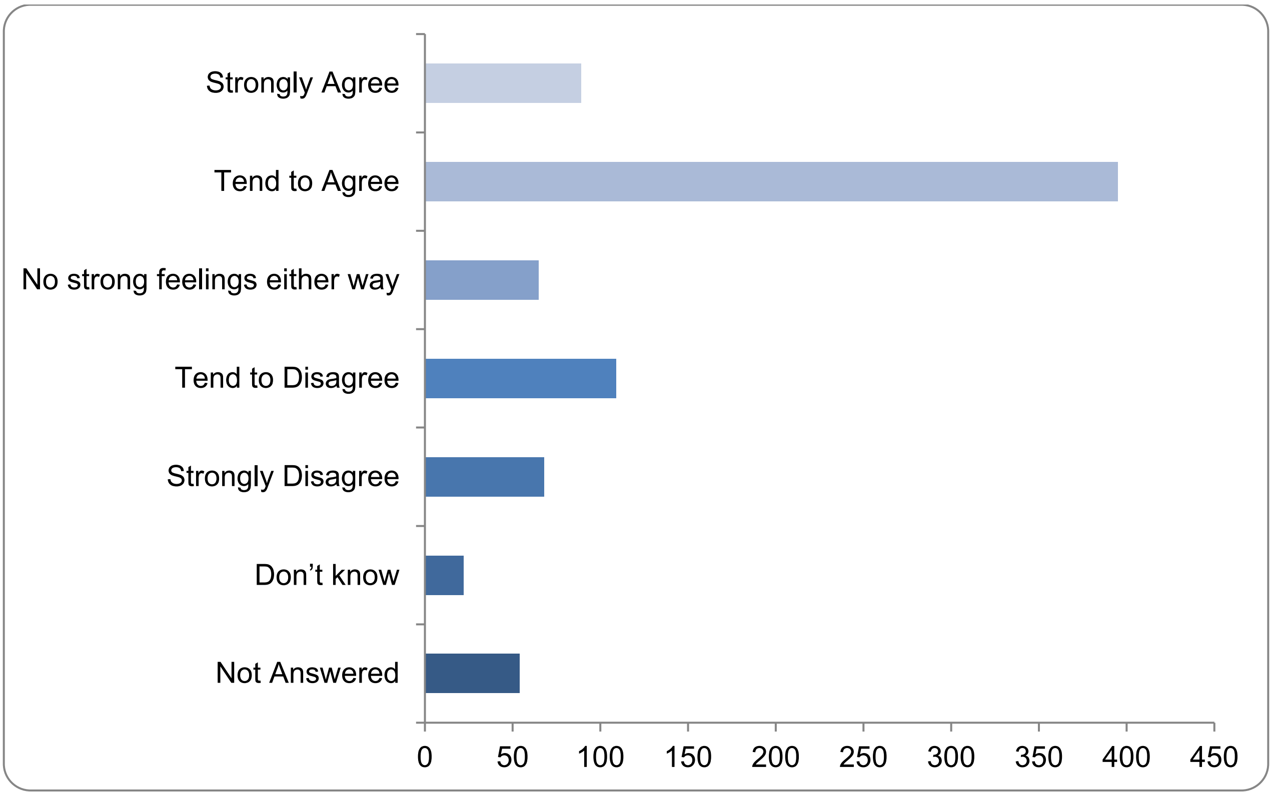

| Option | Total | Percent |
|---|---|---|
| **Strongly Agree** | 123 | 15.34% |
| **Tend to Agree** | 415 | 51.75% |
| **No strong feelings either way** | 54 | 6.73% |
| **Tend to Disagree** | 81 | 10.10% |
| **Strongly Disagree** | 77 | 9.60% |
| **Don’t know** | 13 | 1.62% |
| **Not Answered** | 39 | 4.86% |

**Position 3. EC with an appropriate level of accuracy and performance set out in this document, will aspire in the short term, to support operations for the following:**

- **DAA by Unmanned Aircraft**
- **Where equipped, position information to and from some ANSPs (or future UTMSP – policy under development).**
- **Traffic / situational awareness for manned aircraft**
- **Some limited interaction with traffic collision avoidance system (TCAS) for manned aircraft**

**To what extent, if at all, do you agree or disagree that this position supports the two primary objectives of this Initial EC Technical ConOps?**

There were 748 responses to this part of the question.

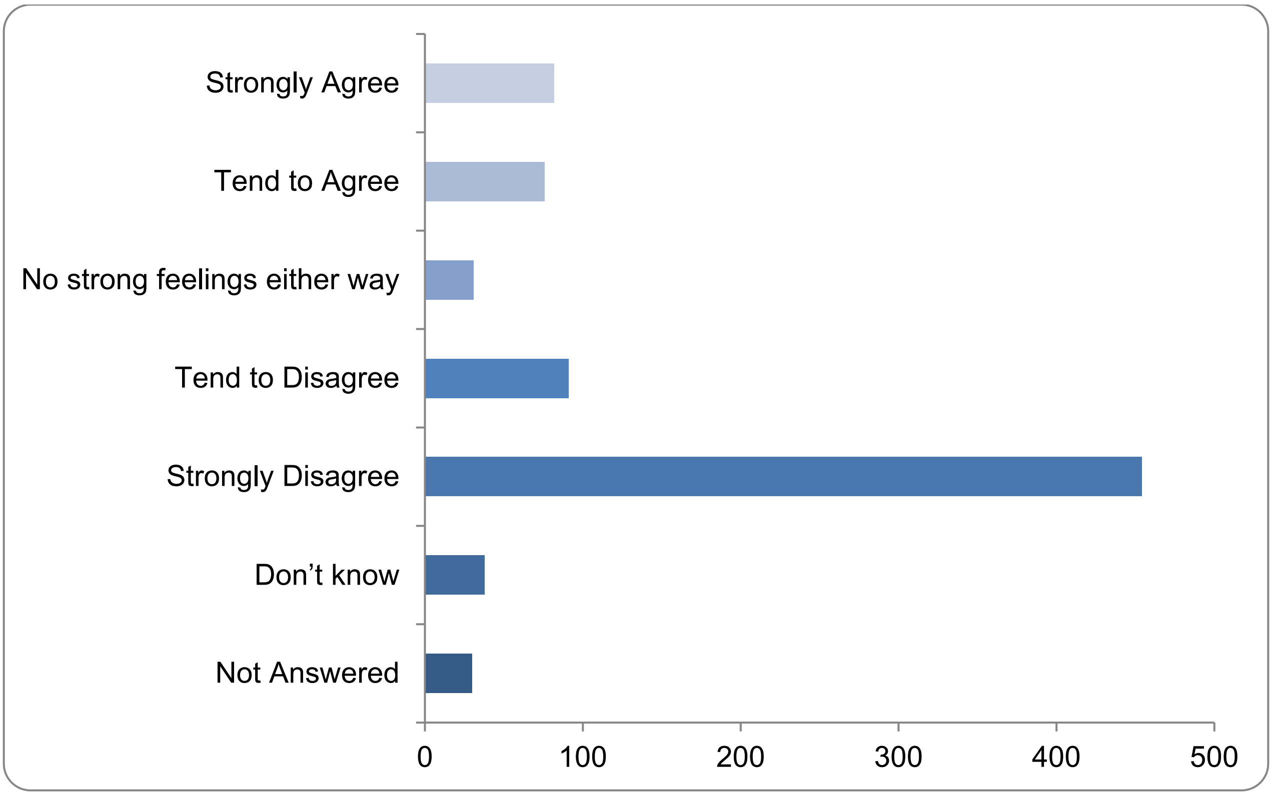



| Option | Total | Percent |
|---|---|---|
| **Strongly Agree** | 89 | 11.10% |
| **Tend to Agree** | 395 | 49.25% |
| **No strong feelings either way** | 65 | 8.10% |
| **Tend to Disagree** | 109 | 13.59% |
| **Strongly Disagree** | 68 | 8.48% |
| **Don’t know** | 22 | 2.74% |
| **Not Answered** | 54 | 6.73% |

**Position 4. Within non-segregated airspace, aircraft operating at <140kts (Kts) Indicated Air Speed (IAS) must use 1090MHz ADS-B devices emitting a SIL and SDA of at least 1, such as (for example) some CAP 1391 devices. Alternatively, a TSO-C112 and TSO-C166 compliant transponder with extended squitter connected to TSO-C199 class B or TSO-C145 Global Navigation Satellite System (GNSS) source.**

**To what extent, if at all, do you agree or disagree that this position supports the two primary objectives of this Initial EC Technical ConOps?**

There were 772 responses to this part of the question.

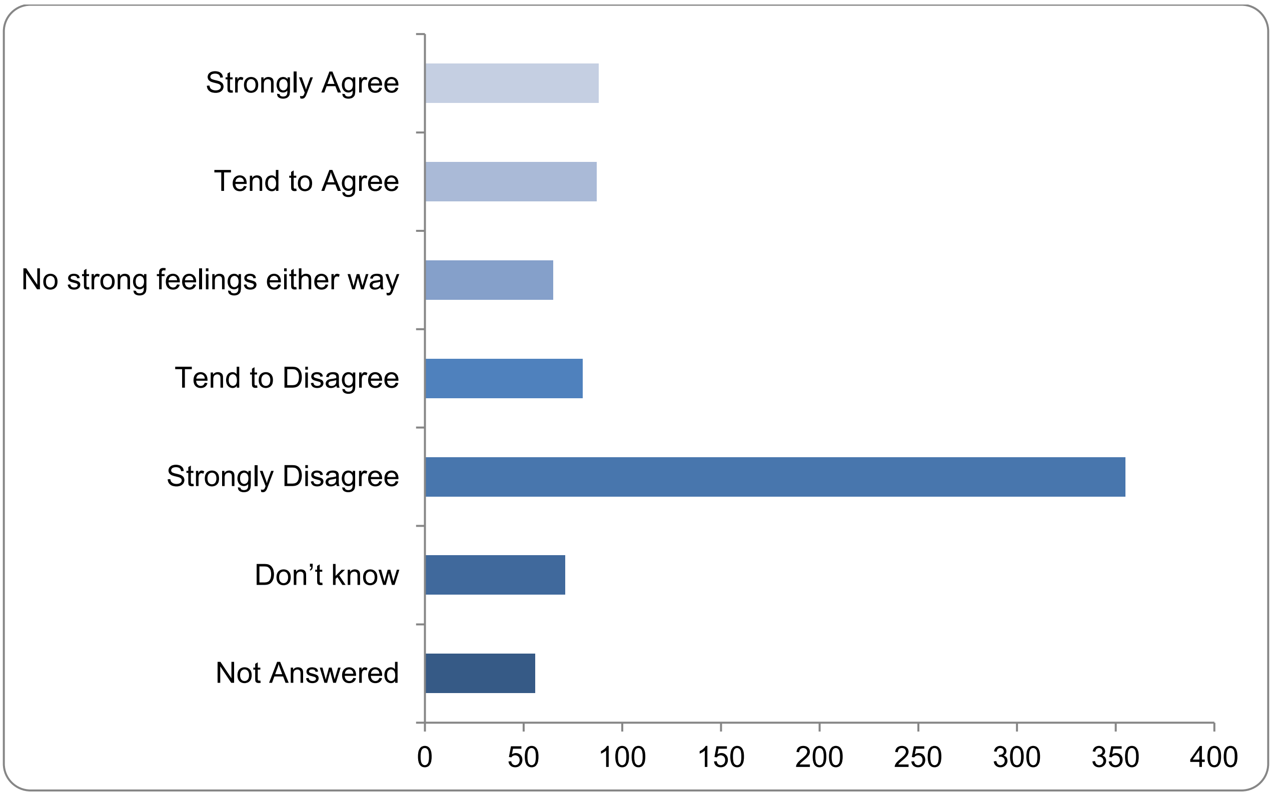



| Option | Total | Percent |
|---|---|---|
| **Strongly Agree** | 82 | 10.22% |
| **Tend to Agree** | 76 | 9.48% |
| **No strong feelings either way** | 31 | 3.87% |
| **Tend to Disagree** | 91 | 11.35% |
| **Strongly Disagree** | 454 | 56.61% |
| **Don’t know** | 38 | 4.74% |
| **Not Answered** | 30 | 3.74% |

**Position 5. Within non - segregated airspace, aircraft operating at >140kts IAS must use a Mode S transponder with ADS-B Extended Squitter functionality and SIL = 3, SDA = 2, typically a TSO-C112 and TSO-C166 compliant transponder connected to a TSO-C145 GNSS source.**

**To what extent, if at all, do you agree or disagree that this position supports the two primary objectives of this Initial EC Technical ConOps?**

There were 746 responses to this part of the question.

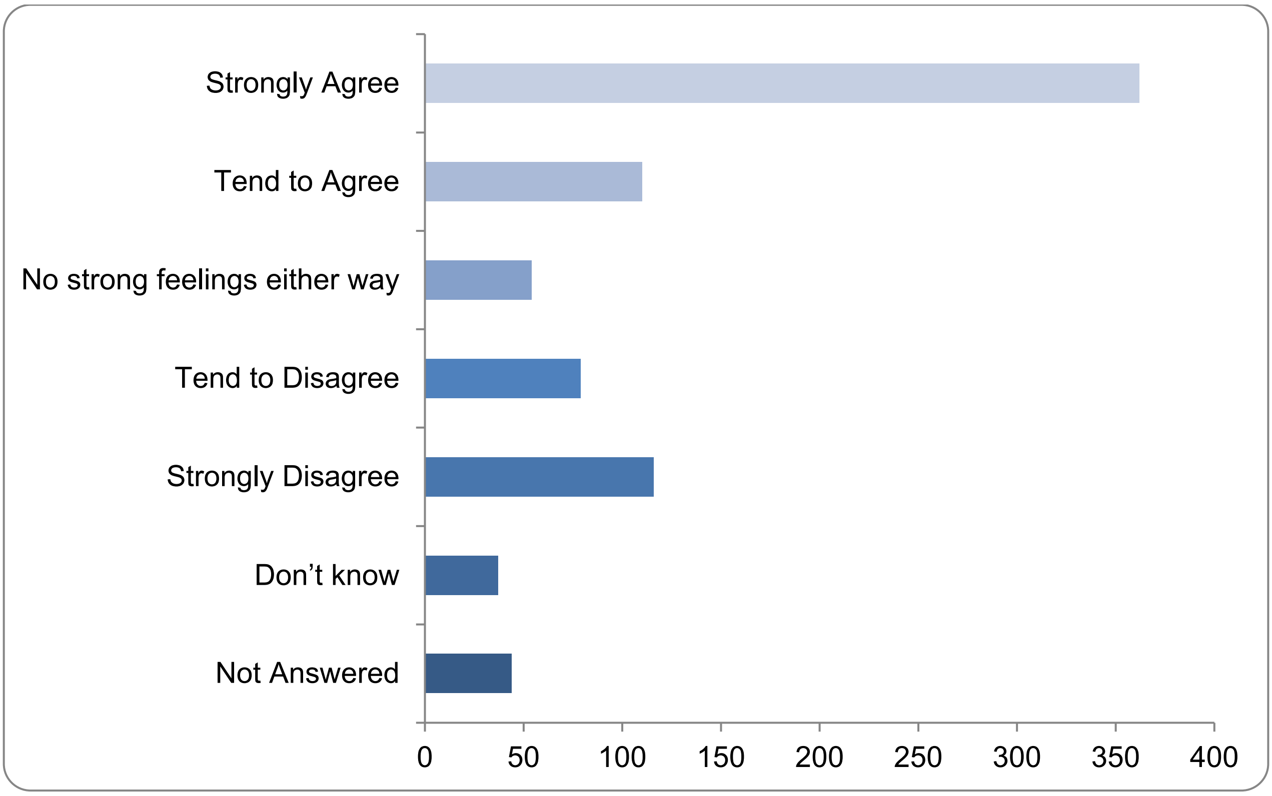



| Option | Total | Percent |
|---|---|---|
| **Strongly Agree** | 88 | 10.97% |
| **Tend to Agree** | 87 | 10.85% |
| **No strong feelings either way** | 65 | 8.10% |
| **Tend to Disagree** | 80 | 9.98% |
| **Strongly Disagree** | 355 | 44.26% |
| **Don’t know** | 71 | 8.85% |
| **Not Answered** | 56 | 6.98% |

**Position 6. Any ADS-B – In carriage for manned aircraft will remain a personal or organisational risk-based choice for the manned aircraft operator.**

**To what extent, if at all, do you agree or disagree that this position supports the two primary objectives of this Initial EC Technical ConOps?**

There were 758 responses to this part of the question.

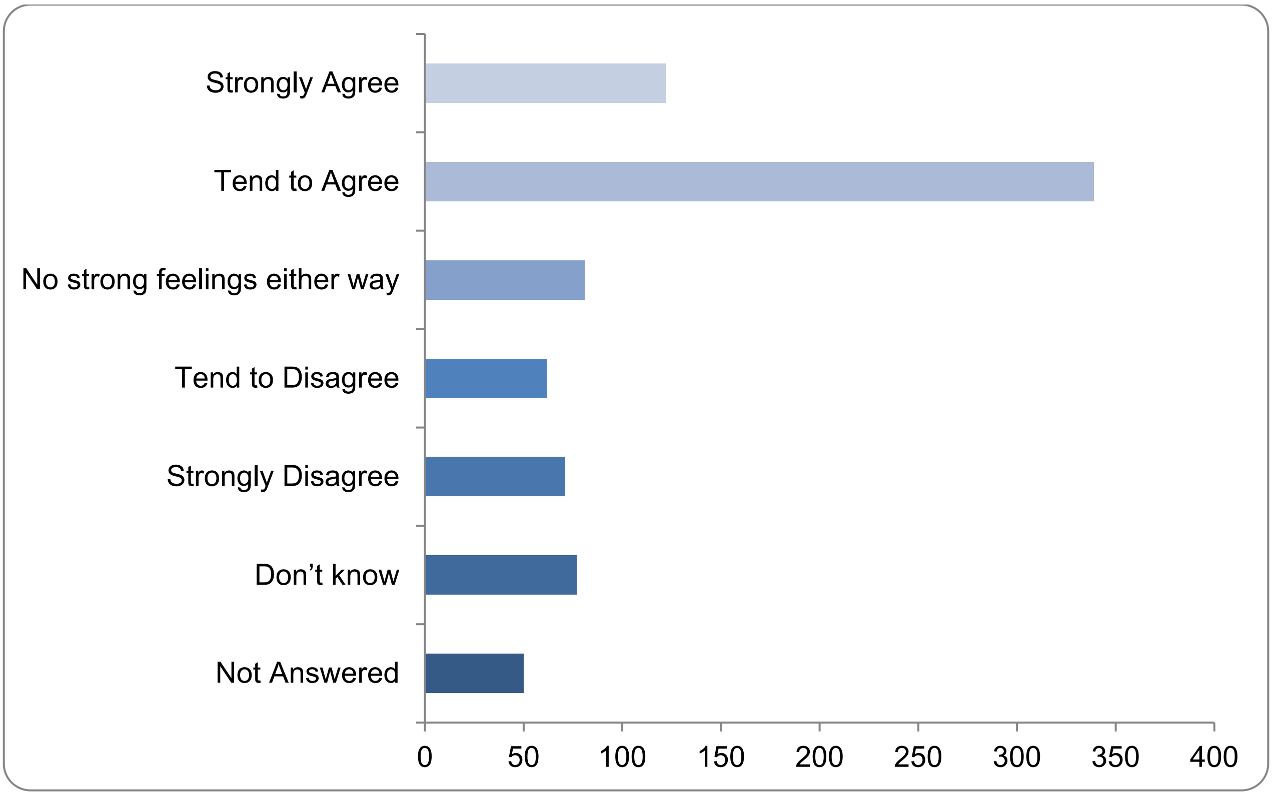



| Option | Total | Percent |
|---|---|---|
| **Strongly Agree** | 362 | 45.14% |
| **Tend to Agree** | 110 | 13.72% |
| **No strong feelings either way** | 54 | 6.73% |
| **Tend to Disagree** | 79 | 9.85% |
| **Strongly Disagree** | 116 | 14.46% |
| **Don't know** | 37 | 4.61% |
| **Not Answered** | 44 | 5.49% |

**Position 7. Within non - segregated airspace, UAS in the Specific Category operating BVLOS, must emit a 978MHz UAT ADS-B signal. The device should function in accordance with the RTCA minimum performance standards DO-282B, (It is expected that DO-282C will be the standard from 2027) and of a minimum power yet to be set out within CAP 1391 supplementary amendment 2025/02. Emissions must meet SIL and SDA of at least 1.**

**To what extent, if at all, do you agree or disagree that this position supports the two primary objectives of this Initial EC Technical ConOps?**

There were 752 responses to this part of the question.

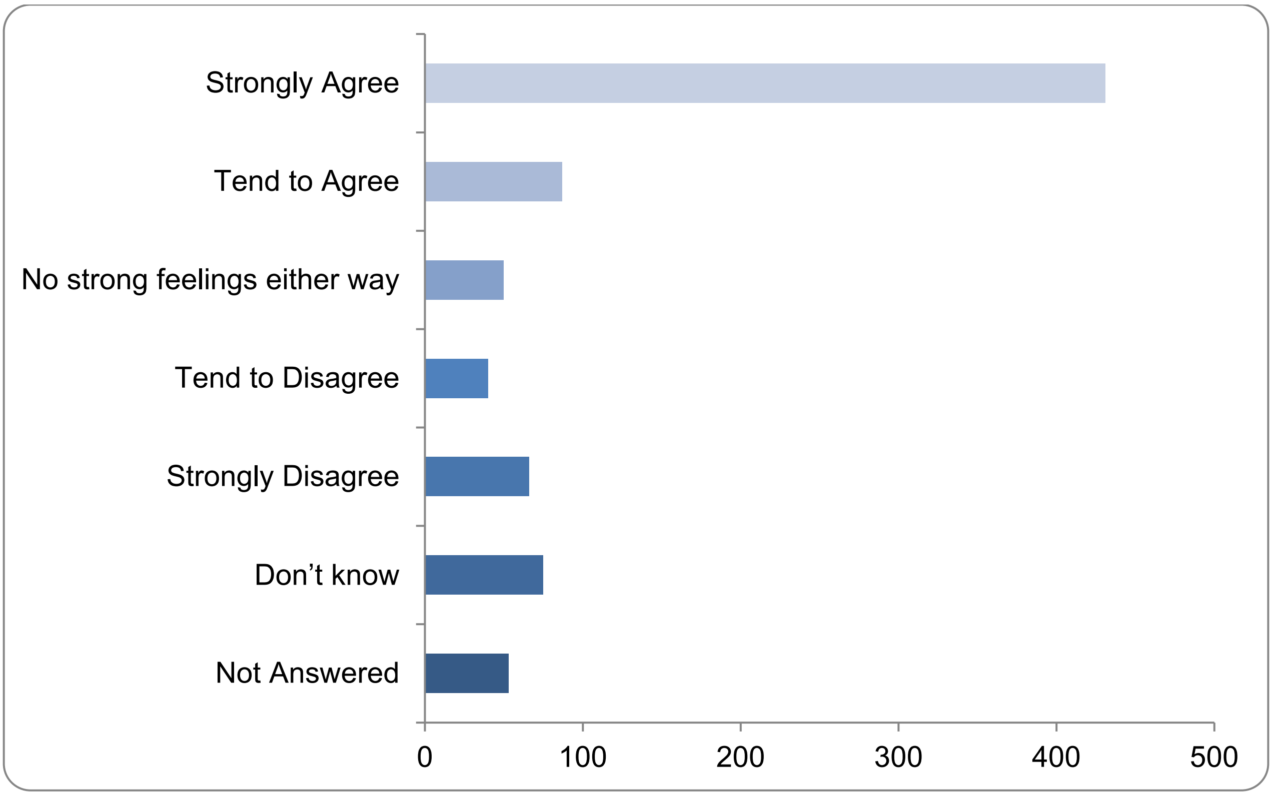



| Option | Total | Percent |
|---|---|---|
| Strongly Agree | 122 | 15.21% |
| Tend to Agree | 339 | 42.27% |
| No strong feelings either way | 81 | 10.10% |
| Tend to Disagree | 62 | 7.73% |
| Strongly Disagree | 71 | 8.85% |
| Don't know | 77 | 9.60% |
| Not Answered | 50 | 6.23% |

**Position 8. Specific category UAS operating BVLOS in non - segregated airspace must be equipped to receive ADS-B 1090MHz and 978MHz UAT in order to detect both manned and unmanned aircraft.**

**To what extent, if at all, do you agree or disagree that this position supports the two primary objectives of this Initial EC Technical ConOps?**

There were 749 responses to this part of the question.

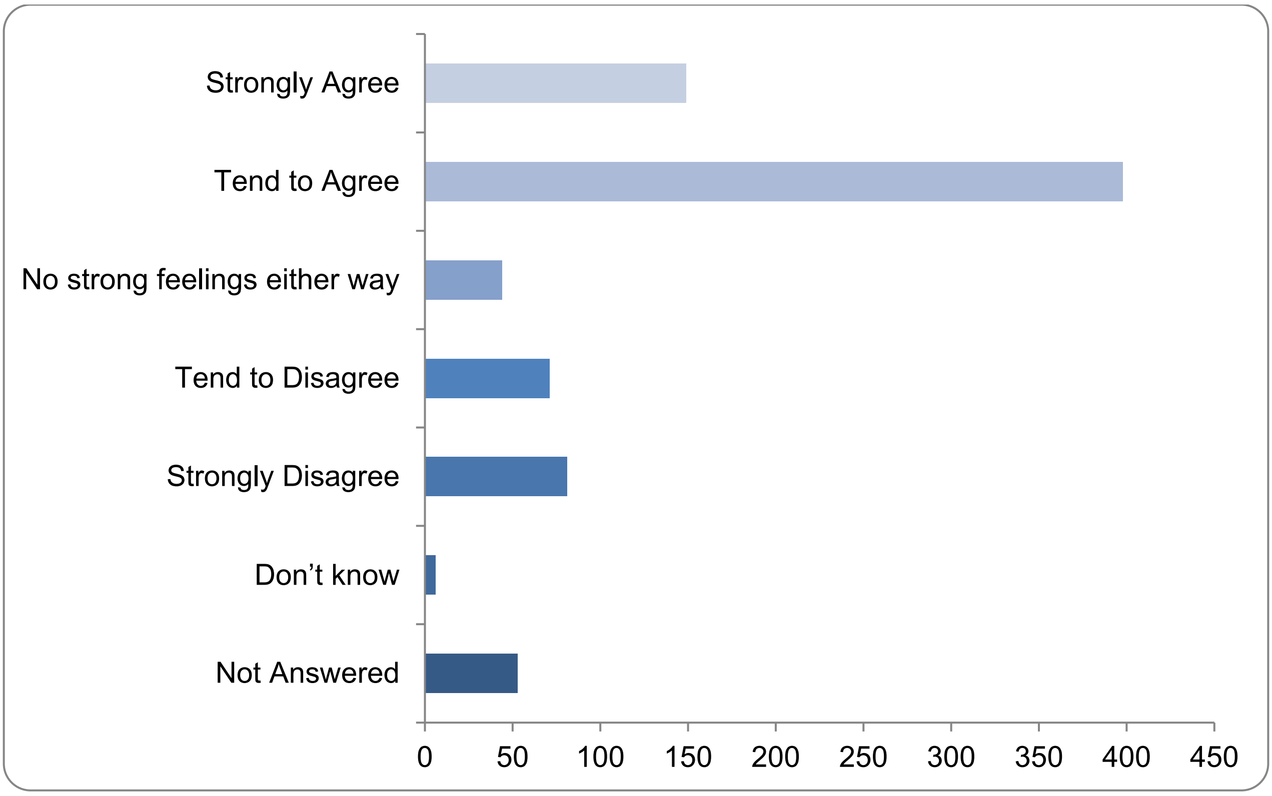



| Option | Total | Percent |
|---|---|---|
| **Strongly Agree** | 431 | 53.74% |
| **Tend to Agree** | 87 | 10.85% |
| **No strong feelings either way** | 50 | 6.23% |
| **Tend to Disagree** | 40 | 4.99% |
| **Strongly Disagree** | 66 | 8.23% |
| **Don't know** | 75 | 9.35% |
| **Not Answered** | 53 | 6.61% |

**Position 9. Aircraft operators, both manned and unmanned, are responsible for ensuring that their EC device is installed in accordance with the equipment manual and any CAA advice. Pilots must also ensure their device is functioning effectively.**

**To what extent, if at all, do you agree or disagree that this position supports the two primary objectives of this Initial EC Technical ConOps?**

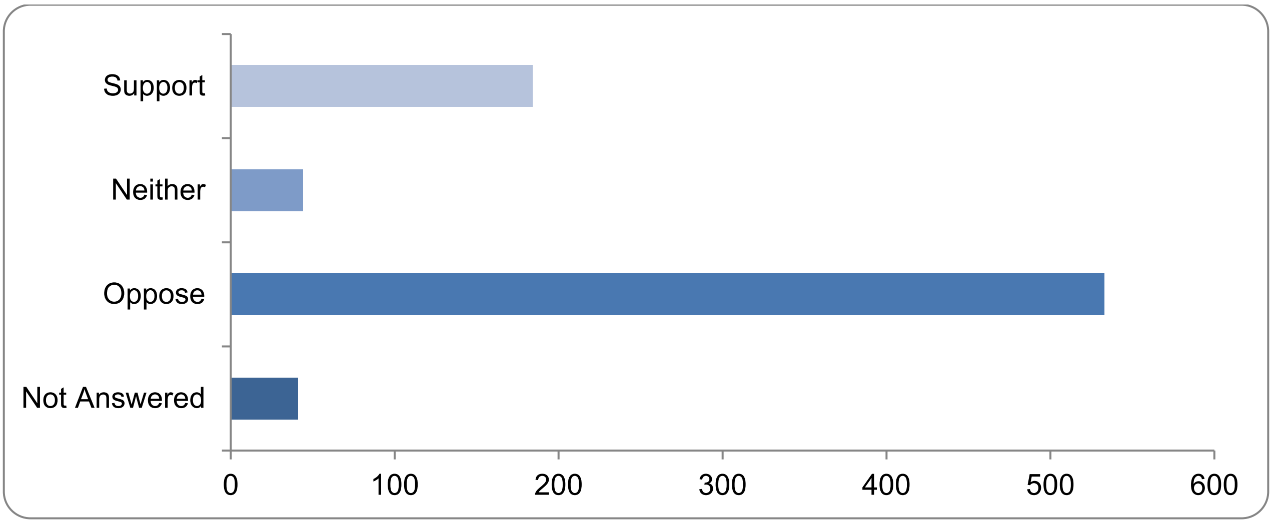
There were 749 responses to this part of the question.




| Option | Total | Percent |
|---|---|---|
| **Strongly Agree** | 149 | 18.58% |
| **Tend to Agree** | 398 | 49.63% |
| **No strong feelings either way** | 44 | 5.49% |
| **Tend to Disagree** | 71 | 8.85% |
| **Strongly Disagree** | 81 | 10.10% |
| **Don’t know** | 6 | 0.75% |
| **Not Answered** | 53 | 6.61% |

### In principle, do you support or oppose the introduction of a potential EC Mandate for lower airspace users in the UK?

There were 761 responses to this part of the question.




| Option | Total | Percent |
|---|---|---|
| **Support** | 184 | 22.94% |
| **Neither** | 44 | 5.49% |
| **Oppose** | 533 | 66.46% |
| **Not Answered** | 41 | 5.11% |

### What operational, financial, or technological barriers, if any, do you foresee with a potential EC Mandate? Please detail your answer.

There were 596 responses to this part of the question.

### What data, studies, or evidence are you aware of, that should be considered in the development of a potential EC Mandate?

There were 492 responses to this part of the question.

### What other views, if any, on the potential introduction of an EC Mandate should the CAA consider at this early stage?

There were 546 responses to this part of the question.

Appendix B
# Abbreviations

| | |
|---|---|
| AAM | Advanced Air Mobility |
| ACAS | Airborne Collision Avoidance System |
| ADS-B | Automatic Dependent Surveillance - Broadcast |
| ADS-L | Automatic Dependence Surveillance - Light |
| ANSP | Air Navigation Service Provider |
| AMS | Airspace Modernisation Strategy |
| ARC | Airspace Risk Category |
| ATC | Air Traffic Control |
| ATS | Air Traffic Services |
| BVLOS | Beyond Visual Line of Sight |
| C2 | Command and Control |
| CAA | Civil Aviation Authority |
| CAP | Civil Aviation Publication |
| CAS | Controlled Airspace |
| CNS&S | Communications, Navigation, Surveillance and Spectrum |
| DAA | Detect and Avoid |
| DfT | Department for Transport |
| DO-260 | Minimum Operational Performance Standards for 1090 MHz Extended Squitter Automatic Dependent Surveillance - Broadcast (ADS-B) and Traffic Information Services - Broadcast (TIS-B) |
| DO-282 | Minimum Operational Performance Standards for Universal Access Transceiver (UAT) Automatic Dependent Surveillance – Broadcast |
| DO-396 | Minimum Operational Performance Standards for Airborne Collision Avoidance System sXu (ACAS sXu) |
| EASA | European Union Aviation Safety Agency |
| EC | Electronic Conspicuity |
| EMIT | European Monitoring of Interrogators and Transponders |
| eVTOL | Electric Vertical Take-Off and Landing |
| FHA | Functional Hazard Analysis |
| FID | Flight Information Display |
| FIS-B | Flight Information Service - Broadcast |
| FLARM | A collision warning system |
| GA | General Aviation |
| GANP | ICAO Global Air Navigation Plan |
| GASCo | General Aviation Safety Council |
| GI | Ground Infrastructure |
| GNSS | Global Navigation Satellite System |
| ICAO | International Civil Aviation Organisation |

| | |
|---|---|
| IFR | Instrument Flight Rules |
| ISM | Industrial, Scientific and Medical |
| Kt | Knot |
| LTE | Long-term evolution (a wireless broadband communications standard) |
| MAC | Mid-Air Collision |
| MHz | Megahertz |
| MLAT | Multilateration |
| MOR | Mandatory Occurrence Report |
| MTOW | Maximum Take-Off Weight |
| NAC | Navigation Accuracy Category Position |
| NACv | Navigation Accuracy Category Velocity |
| NIC | Navigation Integrity Category |
| NISC | National IFF/SSR Committee |
| NTD | Non-Transponder Device |
| Ofcom | The regulator for the communications services in the UK |
| PNT | Position, Navigation, Timing |
| RCE | Reduced capability equipment |
| RTCA | founded in 1935 as the Radio Technical Commission for Aeronautics, now referred to simply as “RTCA” |
| SA | Situational Awareness |
| SA | Supplementary Amendment |
| SARPS | Standards and Recommended Practices |
| SDA | System Design Assurance |
| SERA | Standardised European Rules of the Air |
| SIL | Source Integrity Level |
| SORA | Specific Operations Risk Assessment |
| SRD860 | Short-range Device operating in the 860 MHz band |
| SSR | Secondary Surveillance Radar |
| TCAS | Traffic Collision Avoidance System |
| TIS-B | Traffic Information Service - Broadcast |
| TRA | Temporary Reserved Area |
| TSO | Technical Standards Order |
| TSO-154 | Universal Access Transceiver (UAT) Automatic Dependent Surveillance - Broadcast (ADS-B) Equipment Operating on the Radio Frequency of 978 Megahertz (MHz) |
| TSO-C166 | Extended Squitter Automatic Dependent Surveillance - Broadcast (ADS-B) and Traffic Information Service - Broadcast (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz) |
| TSO-C199 | Provides the requirements for the applicable equipment class for traffic awareness beacon systems (TABSs) |
| UA | Unmanned Aircraft |
| UAS | Unmanned Aircraft Systems |

| | |
|---|---|
| U-Space | A system of digital services and procedures designed to manage and ensure the safe and efficient use of airspace by a large number of UAS |
| UAT | Universal Access Transceiver |
| USA | United States of America |
| UTM | Unmanned Aircraft Systems Traffic Management |
| UK | United Kingdom |
| VFR | Visual Flight Rules |
| VLOS | Visual Line of Sight |