

CAA CAP 3268: Consultation on a proposed UK EC Mandate. A guide for HG / PG / PPG / PHG / parascending / HPA / speedflying and parakite pilots **v1.5**

Link to CAA's consultation page: <https://consultations.caa.co.uk/safety-and-airspace-regulation-group/ec-mandate/>

Link to CAA's online survey: <https://consultations.caa.co.uk/safety-and-airspace-regulation-group/ec-mandate/consultation/>

Consultation closes: 22 September 2026

Read this first

The CAA is asking individual pilots as well as organisations to respond to its proposed Electronic Conspicuity mandate, which would require most civil aircraft flying below FL100 to transmit ADS-B so that they can be electronically detected by suitably equipped aircraft and systems. Your own individual experience and views matter.

Since this document uses many acronyms, a glossary is included starting at page 3. We hope this will assist you in understanding the Consultation and the suggested responses.

This guide is intentionally not a set of model answers. It gives you questions and prompts to help you think about how the proposal would affect the flying that you actually do. Please use your own words and include points that reflect your experience or views.

This guide has the CAA consultation questions in black text (starting on page 5) and our suggested points to think about (in **blue text**) whilst considering your own answer.

A summary of the position that the BHPA will submit as the governing body is shown in **purple italics** and boxed, for your background information and guidance.

The BHPA's overall position is that EC can be useful and should be encouraged where proportionate, but that the CAA's proposed blanket mandate of ADS-B alone is not justified. You may agree or disagree with that position. The BHPA's essential position has not changed from what was set out in its EC Position Paper (August 2022). However, if any pertinent data become available towards the close of the consultation there may be changes to our formal response.

Things to consider when writing your own answer:

- Based on your own flying, do you think the proposal would deliver a real safety benefit?
- Does it solve the risks (if any) that you are most concerned about, including military/state traffic or other aircraft that may not participate in a mandate?
- Would you prefer a different approach, such as recognised local flying areas, better BVLOS drone detect-and-avoid, multi-platform EC, proven lightweight equipment or European-compatible systems?
- If you oppose the present proposal, explain what would need to change before you would consider supporting it.
- Your response does not need to match the BHPA's. The CAA will get more value from a short explanation based on your own experience and opinions than from standard wording.

We would prefer that you do not copy this guide into your consultation response. Pick out the points that genuinely matter to you, add your own examples and say what you think. If your experience leads you to a different conclusion from the BHPA, that is still useful evidence for the CAA.

Further reading

- [CAA CAP 3268](#): The current consultation on a Proposed Electronic Conspicuity Mandate in the UK.
- [CAA CAP 3139](#) Electronic Conspicuity (EC) Consolidated Study Report.
- [BHPA Electronic Conspicuity Position Paper](#) (August 2022).
- EASA is developing and promoting ADS-L as a European electronic conspicuity solution particularly suited to General Aviation and aircraft without certified ADS-B installations.
<https://www.easa.europa.eu/en/the-agency/faqs/automatic-dependent-surveillance-light-ads-l>

Before you start

- Say what sort of flying you do: hang gliding, paragliding, parascending, hill, tow, power, cross-country, competition, coastal/ridge, mountain, training, parakite soaring, etc.
- If relevant, say roughly how often you fly and what EC/traffic equipment you already use (if any, and specifying if you use it to send data and/or receive data).
- Use real examples: typical flight duration, density of aircraft at your flying sites, where you carry instruments (clamped to an upright, leg strap, harness cockpit?), busy-site traffic, terrain, overseas flying and what you have actually seen work or fail.
- Do not feel you have to use technical language. The CAA is asking for operational experience as well as technical evidence.

Glossary of terms

ADS-B — Automatic Dependent Surveillance–Broadcast: A system in which an aircraft automatically broadcasts information including its position, altitude and identity. Other suitably equipped aircraft or ground systems may be able to receive this information. For the proposed CAP 3140 requirements, the BHPA is currently only aware of the uAvionix SkyEcho2 as a portable ADS-B device potentially relevant to compliance; it retails at around £600–£650.

ADS-B IN — The ability to receive ADS-B transmissions from other aircraft or systems and use that information, normally through a connected display or traffic-awareness system.

ADS-B OUT — The ability to transmit an aircraft's own ADS-B information so that other suitably equipped aircraft or systems can detect it.

ADS-L — Automatic Dependent Surveillance–Light A low-power, low-cost electronic conspicuity protocol developed within the EASA framework, particularly for General Aviation and aircraft without certified ADS-B installations, for use in EU states. It can be transmitted over different links: a standard already exists for SRD860 (used by FLARM), and future specifications are intended to support mobile networks such as 4G and 5G (and possibly apps such as SafeSky).

ATC — Air Traffic Control A service provided to help manage aircraft safely and efficiently within controlled airspace and at aerodromes.

ATM — Air Traffic Management The wider system of services, procedures and infrastructure used to manage aircraft movements and airspace, of which ATC is one part.

BVLOS — Beyond Visual Line of Sight An unmanned aircraft operation where the remote pilot cannot continuously see the drone well enough to control it by direct visual observation.

CAA — Civil Aviation Authority The UK's civil aviation regulator.

Detect and Avoid (DAA) — A system or process which detects another aircraft, assesses whether there is a potential conflict and, where necessary, takes or recommends avoiding action. It is particularly relevant to BVLOS UAS operations.

EASA – The European Union Aviation Safety Agency — The European Union agency responsible for civil aviation safety regulation. It performs a broadly comparable role at European level to the UK's CAA.

EC — Electronic Conspicuity The general term for technologies that electronically make an aircraft's position or presence known to other aircraft, ground systems or airspace users.

FANET — Flying Ad-hoc Network A digital communications system used particularly within hang gliding and paragliding. FANET-equipped instruments can exchange position and other information directly with nearby compatible devices.

FLARM — An electronic traffic-awareness and collision-warning system widely used in gliding and also used by many hang glider and paraglider pilots. It exchanges position information and uses algorithms to assess potential collision threats.

GA — General Aviation Civil aviation other than scheduled commercial airline operations. It includes activities such as private flying, gliding, hang gliding, paragliding, microlighting and many other forms of recreational and business aviation.

GNSS — Global Navigation Satellite System Satellite-based navigation systems used to determine position, such as GPS and Galileo.

Remote ID — Electronic identification information transmitted by a drone. It can include information such as the drone's identity and position. The developing ADS-L architecture is intended to allow some Remote ID information to be rebroadcast to other airspace users.

SRD 860 — Short Range Device 860 MHz band A European radio-frequency band used by systems including FLARM and the radio-based form of ADS-L. FLARM and ADS-L are different protocols, even though they can operate in the same frequency band.

SSR — Secondary Surveillance Radar A radar surveillance system which interrogates aircraft transponders and uses their replies to provide information such as aircraft identity and altitude.

UAS — Unmanned Aircraft System A drone together with the equipment and systems needed to operate it.

UAT — Universal Access Transceiver A data-link technology used for aviation information. The CAA-supported obstruction-beacon trial referred to in this guidance used 978MHz UAT beacons to electronically indicate that a flying site was active.

UTM — Unmanned Traffic Management Systems and services intended to manage and support unmanned-aircraft operations, particularly more complex operations such as BVLOS flying.

VLOS — Visual Line of Sight A drone operation in which the remote pilot keeps the unmanned aircraft in direct visual sight so that its flight and surrounding airspace can be monitored visually.

1090 MHz — The radio frequency used by Mode S transponders and conventional ADS-B transmissions. It is also used by important aviation surveillance and collision-avoidance systems, which is why the effect of additional transmissions is relevant to the consultation.

The CAA consultation questions.

1. The CAA's proposal is that the EC Mandate should apply to all civil general air traffic that is not already required to carry and use ADS-B equipment, operating below FL100 in UK sovereign airspace, subject to the exceptions for military and state aircraft and VLOS operations described in the consultation. Do you agree with that proposal?

Response format: Yes / No / Do not know; followed by a free-text explanation.

Please explain your reasoning and provide any supporting evidence. If you think the scope should be drawn differently, explain why and what alternative you would propose.

BHPA's suggestions for things to think about when writing your own answer:

- Think about the sort of flying you actually do. Would the same rule make sense for a paraglider on a known ridge, a paramotor on a local flight or one of these aircraft undertaking a long cross-country?
- Are there established sites where other airspace users could be told that HG/PG activity is normally concentrated, instead of every aircraft having to transmit individually?
- When you leave a site on cross-country, does your route become less predictable? Would that change your view about carrying individual EC?
- Who would realistically be best able to detect and manoeuvre in an encounter: you, a fast powered aircraft or a BVLOS drone? Remember that existing Rules of the Air responsibilities still apply.
- If you think universal EC mainly benefits new BVLOS or airspace services, who do you think should bear the cost?

Scope of the mandate: BHPA's position and response: No

As CAP3139 states, "The existing CAA requirements for EC in the UK are not risk-based and have not yet been fully captured", this shows that the mandate proposal does not fit with the CAA's espoused position of risk and evidence based proportionate regulation.

As CAP3139 states, "The safety contribution of EC technologies that are not certified (for example those in CAP1391) and any other equivalent technology, is unclear: The literature review did not identify any source that properly considers the safety contribution of non-certified EC technologies.", Again, this shows that the mandate proposal does not fit with the CAA's espoused position of risk and evidence based proportionate regulation.

A fundamental question is who would be expected to use the new ADS-B data, how, and to achieve what? There is no existing or even realistically planned ground infrastructure and so the proposal appears to rely primarily on air-to-air use. The CAA should therefore explain clearly what safety function that air-to-air information is intended to perform. There are planned exemptions for military aircraft and possibly state aircraft so it cannot be for other aircraft (crewed or otherwise) to avoid them. VLOS uncrewed operations are not included so it cannot be for other aircraft, crewed or otherwise, to avoid them.

The proposed mandate does not appear to consider what happens when there is notified radio frequency jamming – does the notified airspace effectively become closed to all aircraft because the pilot will not be able to verify the serviceability of their device?

The BHPA does not support a blanket ADS-B mandate applying to almost all civil GA below FL100. Different aircraft operations have very different risks, different acceptances of risk, equipment limitations and abilities to take avoiding action. The CAA should first define what universal EC is intended to achieve, how the information will actually be used, and how this fits with the existing Rules of the Air. With respect to its own operations, the BHPA proposes a more proportionate distinction between defined local HG/PG flying areas and pilots flying cross-country.

2. Do the minimum performance requirements set out in CAP 3140 provide appropriate and workable technical requirements for the EC Mandate?

Response format: Yes / No / Do not know; followed by a free-text explanation.

Provide evidence where technical requirements may affect overall impacts, implementation feasibility, interoperability or operational practicality.

BHPA's suggestions for things to think about when writing your own answer:

- Where would you physically carry or mount the proposed equipment? Could your body, harness, wing or nearby terrain block the signal?
- Could the equipment's size, shape and (radio frequency emissions) present a physical risk to you?
- Do you fly low, close to hills or mountains, or in places where signal reception is variable? Describe your own experience if you have any.
- How long are your flights? Would battery endurance, weatherproofing or weight be a problem?
- Do you already own SkyEcho2, FLARM, FANET, SafeSky, PilotAware or another traffic/EC device? As far as the BHPA is aware, only SkyEcho2 is currently able to meet CAP3140.
- If you fly in busy gaggles or on crowded ridges, do you think a large number of transmissions would provide useful information or create clutter/alerting problems?
- Do you think the CAA should demonstrate that the 1090 MHz frequency proposed for ADS-B has sufficient capacity for the additional aircraft brought into the system by the mandate, including very dense local concentrations at soaring sites and competitions?
- Consider whether for pilots who fly, both in Europe and the UK, a UK-only ADS-B requirement would mean carrying different equipment from the ADS-L-compatible systems when travelling between Europe and the UK.

Are the CAP 3140 technical requirements workable? — BHPA's position and response: No

The BHPA believes that the proposed requirements have not been shown to work effectively for cockpit-less and foot-launched aircraft. Body shielding (as detailed in CAP3139), terrain masking and limited detection ranges are already known issues as previously briefed to the CAA.

The CAA also needs to demonstrate that additional 1090 MHz transmissions can be accommodated safely, especially when CAP3139 details potential safety issues that are likely to occur before 2040, i.e. only a few years away from the start of the proposed mandate. The CAA should therefore explain how the proposed architecture remains sustainable if 1090 MHz loading subsequently becomes a material constraint, without requiring affected pilots to re-equip again. (some for a third time !).

CAP3139 identifies increasing 1090 MHz loading as a potential constraint and estimates that, under its modelled assumptions, around 2,123 active transmitting airframes across the UK in 2040 would produce a notable effect on SSR performance. The report stresses that the precise saturation point is uncertain. Before introducing a mandate which could add many thousands of potential 1090 MHz transmitters, the CAA should publish the assumptions used to assess the additional loading created by the mandate, including the number of aircraft expected to transmit simultaneously, message rates, local traffic concentrations (including the effect of unusually dense local concentrations such as soaring sites and competitions) and the point at which loading would become unacceptable. It should also explain what mitigation would be available if those limits were approached.

The CAA needs to explain how non-certified ADS-B information from CAP3140 devices would actually be used by UTM providers, ATC units and civil air transport, and clarify which existing devices would comply. This is particularly important as there is effectively zero ATC ability to use this ADS-B data through there being no agreed planned hardware, software or use protocols.

As flying tourism is prevalent amongst hang glider and paraglider pilots, particularly with large numbers travelling regularly between mainland Europe and the UK, the BHPA also considers European interoperability important. EASA describes ADS-L as a low-cost, low-power solution particularly suited to GA and aircraft without certified ADS-B installations. ADS-L already has a standard for transmission over the SRD860 band, with future specifications intended to support mobile networks such as 4G and 5G. The CAA should explain how ADS-L and existing systems such as FLARM, FANET and network-based EC could be incorporated within the UK architecture rather than creating an isolated UK-only solution.

3. CAP 3140's Position 6 states that ADS-B IN receive capability for crewed aircraft should remain a voluntary, operator-led choice rather than a mandatory requirement. Do you agree with this position?

Response format: Yes / No / Do not know; followed by a free-text explanation.

If no, explain what approach you would propose and why, including the operational and safety implications. Provide supporting evidence where available.

BHPA's suggestions for things to think about when writing your own answer:

- Would receiving ADS-B traffic information, perhaps on a screen, help you, or could it distract you from maintaining a good lookout?
- What happens when you are in a busy thermal, ridge or group with many aircraft close together?
- Could repeated alerts or a crowded display cause you to focus on the instrument rather than the traffic around you?
- This question is specifically about ADS-B IN. Your answer can simply be based on whether you think reception should be optional for the way you fly.

Should ADS-B IN remain voluntary? — BHPA's position and response: Yes
ADS-B IN should remain a pilot/operator choice.

Lookout remains the primary collision-avoidance method for our types of aircraft. In dense ridge, thermal or competition traffic, electronic displays and repeated alerts are known to distract pilots or encourage fixation on one displayed target while other aircraft are missed.

There will be significant numbers of aircraft that will not be broadcasting; state, military and VLOS. This may significantly reduce claimed benefits, possibly to the extent that over-reliance on an ADS-B IN device could be detrimental to safety (as demonstrated by the GASCo trial reported on in CAP3139).

For HG/PG, being electronically visible to faster aircraft and BVLOS drones is likely to be more useful than being required to receive traffic information, so they can detect and manoeuvre to avoid our slow-moving aircraft.

4. Do you think there are circumstances in which the objectives of an EC Mandate could be met through means other than direct carriage of EC equipment by the aircraft?

Response format: Yes / No / Do not know; followed by a free-text explanation.

Explain how any alternative approach would deliver the objectives of the EC Mandate set out in Chapter 3. Provide evidence on the operational contexts where this might apply.

BHPA's suggestions for things to think about when writing your own answer:

- Could a defined local flying area be published so that other pilots and drone systems know that non-EC HG/PG activity is likely to be there?
- Would it make sense for individual EC to become more relevant when a pilot leaves that area to fly cross-country?
- Could a site beacon help at your site, or would power, siting, theft, maintenance or landowner issues make it impractical?
- Who would be responsible for its use, storage, maintenance, etc?
- The CAA has already supported a UK trial of 978 MHz UAT obstruction beacons at gliding, HG/PG and model-flying sites. Think about whether electronically identifying an active flying site could be useful at the sites you fly from, bearing in mind that there is no compulsion for other manned aircraft to be able to detect it.
- Would a beacon or other site-level electronic notification be more useful than requiring every aircraft flying locally at that site to transmit individually?

- If your site uses several take-offs for different wind directions, would one beacon adequately describe the activity, or would a more flexible system be needed?
- Would a beacon wrongly encourage other airspace users to assume that every non-transmitting HG/PG stays inside a fixed area?

Can alternatives to individual EC carriage meet the objectives? — BHPA's position and response:

Yes

The FLARM system has proven its worth through documented reductions in mid-air collisions. FANET is also widely used in free flight. It makes sense to integrate effective existing technologies into the UK's EC structures as opposed to ignoring them. If ground infrastructure as detailed in CAP3139 is going to be part of the whole system, then why can it not import FLARM data as well as ADS-B?

The BHPA believes alternatives should be a normal part of the system rather than infrequent exemptions. Established HG/PG sites could have defined local flying areas. The CAA-supported obstruction-beacon trial demonstrated that 978 MHz UAT site beacons can provide electronic notification of active flying sites. Such beacons could therefore form part of an alternative means of compliance, particularly as part of a centrally managed network. They would not, however, describe the full volume occupied by HG/PG activity or replace individual EC where that becomes appropriate, for example when a pilot leaves the defined local area on a cross-country flight.

5. The CAA and the Department for Transport are considering how to balance clear rules with the flexibility needed as technology develops. This includes whether detailed technical requirements for EC equipment should be set out in guidance or other non-legislative documents rather than in legislation. Is there anything the CAA should take into account?

Response format: Free-text response.

BHPA's suggestions for things to think about when writing your own answer:

- Would you want the law tied to one particular technology, frequency or type of device?
 - How important is it that a device bought in the UK also works when you fly abroad, and that visiting pilots can fly here without buying UK-only equipment?
 - Do you already use systems such as FLARM, FANET, SafeSky or PilotAware that you would not want displaced?
 - Would you be comfortable with technical details changing through guidance, provided the legal duty itself could not be expanded without consultation?
 - Do you think that using the same devices as required in Europe would help keep the cost down through volume manufacturing?
- If you fly in mainland Europe, would you expect the UK system to recognise or interoperate with ADS-L so that the same equipment could be used both in the UK and Europe?

Should detailed technical requirements be in guidance rather than legislation? — BHPA's position and response:

Yes

The BHPA supports legislation setting safety outcomes and basic legal duties, which this proposed mandate does not do, while technical detail remains in publications that can evolve as technology changes. The system should remain technology-neutral and internationally compatible. Guidance must not be used later to increase the cost or practical burden of the legal requirement without proper consultation.

International compatibility is especially important for hang glider and paraglider pilots because many pilots routinely travel between mainland Europe and the UK to fly, taking the same aircraft, harness and instruments with them. EASA expects ADS-L to be supported by portable and installed equipment, mobile phone applications and, potentially, software or firmware updates to existing conspicuity devices. A UK approach should therefore avoid requiring pilots to buy or carry a separate UK-only EC system in addition to equipment used for European flying.

EASA expressly envisages ADS-L working alongside existing systems such as FLARM rather than replacing them. This supports a multi-platform approach in which existing effective EC systems can continue to be used while contributing to a wider interoperable picture.

6. Is there anything the CAA should consider as it develops its oversight and compliance approach to support effective implementation of an EC Mandate across different aircraft categories and operational contexts?

Response format: Free-text response.

Provide examples where possible, including aircraft categories for which existing oversight mechanisms may not be appropriate or sufficient, and suggestions for how compliance might be assessed.

BHPA's suggestions for things to think about when writing your own answer:

- The CAA's own research indicates that the frequency currently used for ADS-B is likely to become overloaded in the next decade or so. Have the CAA thought about how many hang glider and paraglider pilots there may be flying on a good day? Research carried out by EASA using the Open Glider Network (OGN) revealed, to their great surprise, that on an average day in the Alps, over 50% of the GA traffic was hang gliders and paragliders.
- If site beacons form part of the solution, should volunteer clubs be expected to take responsibility for technical configuration, spectrum licensing, monitoring and maintenance, or should that infrastructure be centrally managed?
- In cockpit based aviation, pilots can prove that they carry mandatory equipment when their aircraft goes through its annual airworthiness inspection. If carrying an EC device becomes mandatory, how and when would you demonstrate that a portable EC unit is 'installed' and working correctly?
- Should the requirement be simply to carry, switch on and appropriately operate a compliant device, rather than applying arrangements designed for permanently installed aircraft avionics?
- What should happen if a portable device fails during a flight, has a flat battery, loses its position source or is affected by notified GNSS interference?
- Should pilots be given clear, simple guidance explaining what they are required to do before and during flight?
- Could a complicated or expensive rule cause some pilots to ignore it, especially those outside clubs or associations? How could compliance realistically be monitored for aircraft such as HG and PG which are unregistered, non-radio and not routinely visible to conventional surveillance systems?

Oversight and compliance — BHPA's position and response:

Conventional aircraft oversight systems do not fit much of the BHPA community. HG/PG and many of their powered variants have no fixed avionics installation, permanent electrical system or maintenance organisation. The CAA should therefore develop simple, proportionate compliance arrangements, with education taking priority over enforcement. Compliance arrangements need to recognise that most BHPA aircraft have no permanent electrical system or fixed avionics installation and that portable equipment may be transferred between different aircraft. The CAA should define a simple and proportionate means by which a pilot can satisfy the requirement, including what is expected before flight and what happens following equipment failure, loss of position information or notified GNSS interference.

Where site-level infrastructure is used (e.g. beacons), the BHPA does not believe volunteer clubs should be expected to become EC infrastructure providers responsible for technical configuration, licensing and system assurance.

7. Do you agree that a single compliance start date, following an adequate transition period, is preferable to a phased approach?

Response format: Yes / No / Do not know; followed by a free-text explanation.

If not, explain what phased or alternative delivery model you would propose, which categories it should apply to, and why. Provide supporting evidence.

BHPA's suggestions for things to think about when writing your own answer:

- Should every aircraft type have the same compliance date even if suitable equipment is not equally available for all of them?
- Should cockpit-less aircraft be included before equipment has been shown to work reliably when body-mounted, close to terrain and in dense soaring traffic?
- Should BVLOS drone detect-and-avoid and the supporting ground/network system be established before relying on GA transmissions?
- Would a phased approach allow sectors with suitable equipment to proceed without forcing other sectors to adopt an unsuitable interim solution?
- Should existing effective EC equipment, including equipment previously encouraged through the CAA EC Rebate Scheme, be taken into account when deciding when different sectors are required to comply?

Single compliance date or phased introduction? — BHPA's position and response: No
The BHPA does not support the proposed mandate. If a mandate is introduced, the BHPA does not believe every aircraft category should necessarily be required to comply on the same date. A compliance date should only be set for a sector once suitable, affordable equipment is available and has been demonstrated to work effectively in that sector's normal operating environment.

BVLOS UAS detect-and-avoid systems and supporting infrastructure as extensively discussed in CAP3139 should be established and validated first, as should any UK wide ground infrastructure required to make the system work.

If the CAA nevertheless establishes a single final compliance date, it should operate as a long-stop date by which all categories have had sufficient time to complete their transition.

8. Is the proposed transition period of approximately two years achievable across different operations?

Response format: Yes / No / Do not know; followed by a free-text explanation.

Please explain your reasoning and provide supporting evidence. Please include evidence on how quickly operators in your sector could realistically equip, whether sufficient EC equipment and installation capacity would be available, and what transition period would be more appropriate if two years is not sufficient.

If you are a manufacturer or supplier of EC equipment, please provide evidence on your current production capacity, any constraints that could limit supply within this timeframe, and whether compliant equipment could be made available in the quantities needed. If not, please explain what timeframe would be more realistic and why.

BHPA's suggestions for things to think about when writing your own answer:

- Think beyond whether you could buy a device within two years. Would a suitable compliant device actually exist for your flying?
- Would it be light enough, weatherproof, simple to use and have enough battery for your longest days?
- Would you know that the device you buy is definitely compliant before the two-year clock starts?
- Have you already bought non-ADS-B EC equipment, for example FLARM, FANET, PilotAware or other EC equipment, perhaps with support from the CAA EC Rebate Scheme? Should pilots be expected

to replace such equipment within two years? How would you feel if the mandate required you to buy something different?

- Should the transition period begin only once pilots know what equipment and systems will actually be accepted?

Is a two-year transition period achievable? — BHPA's position and response: No

Not on the basis of the present proposal.

Two years may be sufficient to purchase and adopt equipment once the final requirements are known and suitable products are readily available. The difficulty is that those conditions do not presently exist for all BHPA aircraft.

However, the issue is not simply whether pilots could purchase equipment within two years. Suitable equipment from multiple suppliers must first exist and be shown to work in real operating environments. The implementation model must not create effective dependence on a single supplier. It is unacceptable to give any one supplier a monopoly – which is effectively the current situation.

BHPA pilots do not replace their electronic equipment very often, with individual devices frequently being retained in service for over a decade. A single compliance date when there is only one device available will create a very long-term monopoly and stifle development of alternative devices due to the low replacement rate and hence few sales.

The final compliance date should not take effect until technical standards, compliance routes, operational testing, infrastructure and international compatibility are sufficiently settled. That should include resolving interoperability with ADS-L and the wider European EC environment before any UK compliance is required for Hang Gliding and Paragliding.

For hang gliding and paragliding specifically, suitable equipment and compliance routes should also have been demonstrated to work in their normal operating environment before compliance becomes mandatory.

9. Is there anything you want to tell the CAA about the availability of compliant EC equipment and the capacity of the installation and maintenance sector to support implementation within the proposed timescales?

Response format: Free-text response.

Please provide specific evidence on equipment availability, installer capacity, lead times, and any other supply chain constraints relevant to your sector

BHPA's suggestions for things to think about when writing your own answer:

- What EC or traffic-awareness equipment do you currently use, if any?
- Where do you carry it?
- Is there a safe place to mount a transmitter so that it stays secure through launch and landing and is not badly shielded by you or the wing, or other parts of the equipment (e.g. paramotor)?
- If the alternative is site-based infrastructure (e.g. a beacon) rather than equipment on every aircraft, would you expect that infrastructure to be supplied and centrally managed rather than left to individual clubs?

Equipment availability and installation capacity— BHPA's position and response:

HG/PG generally use portable equipment rather than conventional installed avionics, so installer capacity is not an issue. The bigger question is whether suitable devices exist that can be safely

carried, are not excessively shielded by the pilot or wing, have adequate battery life and remain secure and functional in an exposed position during launch, flight and landing. At present, the BHPA is aware of only one portable ADS-B device that may potentially meet the proposed CAP3140 requirements.

The CAA should also clarify the future status of existing equipment, (including those part-funded through its EC Rebate Scheme) such as SkyEcho 2, FLARM and FANET-capable devices.

EASA expects ADS-L to be available through a range of portable and installed devices, mobile applications and upgrades to existing conspicuity equipment. This is a model particularly relevant to cockpit-less and foot-launched aviation and should be considered before the UK commits to an approach centred on a more limited range of dedicated ADS-B equipment.

10. What costs would the proposed EC Mandate impose on you or the sector you represent?

Response format: Free-text response.

Provide quantitative estimates where possible, including equipment purchase, installation, maintenance, training and operational costs. Explain whether costs would fall particularly on certain groups and provide supporting evidence.

BHPA's suggestions for things to think about when writing your own answer:

- Compare the likely cost of compliant EC with what your aircraft and equipment actually cost you, particularly if bought second-hand. The BHPA understands that a small portable ADS-B device, the uAvionix SkyEcho2, retails for around £600 - £650 in the UK at the time of writing.
- Do you own more than one aircraft or harness? Would one device work equally well with all of them?
- Would a UK-only requirement cost you more when flying abroad? If you already use, or expect to use, ADS-L-compatible EC when flying in mainland Europe, would a separate UK requirement mean buying, carrying or maintaining two systems?
- Would the cost change how often you fly, whether you stay in the sport, or whether you comply?

Costs — BHPA's position and response:

It is unclear whether one device will be permitted to be used across multiple aircraft, which has direct cost implications.

Mandatory EC could represent a substantial proportion of the value of a low-cost or second-hand hang glider, paraglider or powered variant of one of our aircraft. Costs will extend beyond the device itself to batteries, mounting, replacement, subscriptions, licences, data and possibly re-equipment for overseas flying.

Where equipage is imposed substantially to enable BVLOS drones or new airspace services, the BHPA believes the CAA should consider the 'beneficiary-pays' principles and an appropriate subsidy from those that we are told will make significant commercial gains from the enabling of their operations.

This is particularly relevant to pilots who routinely travel between mainland Europe and the UK.

Divergence from the European ADS-L environment could create the unnecessary cost and inconvenience of maintaining separate UK and European EC solutions.

11. What evidence do you have on the likely operational impacts of the proposed EC Mandate?

Response format: Free-text response.

Provide data, studies or operational experience where available.

BHPA's suggestions for things to think about when writing your own answer:

- How predictable is your route when ridge soaring, thermalling or searching for lift?
- How often do you fly close to terrain or close to other pilots?
- If a powered-aircraft pilot sees one electronic target, could concentrating on that target make it harder to see the other aircraft around it?

- If a fast-moving aircraft detected you only a few kilometres away, could you realistically do much to avoid it? Who has the greater ability to manoeuvre?
- What voluntary systems have you used? What has been useful, unreliable or distracting?
- If you fly in large groups, in competitions or on busy ridges, mention that experience: the CAA is specifically asking for operational evidence.
- Is it enough for an EC transmission simply to be received? It is important to think about the way it is displayed, interpreted and acted upon.

Operational impacts — BHPA's position and response:

HG/PG do not follow predictable A-to-B routes. Pilots follow lift, operate close to terrain and regularly fly close together in ridges, thermals and competitions. Body and terrain shielding, limited detection range, display clutter and target fixation all need to be considered. The BHPA believes the greater technical detection and avoidance burden should rest with the aircraft or operator best able to act, particularly BVLOS UAS and higher-energy powered aircraft, without changing existing Rules of the Air responsibilities. The complete safety chain matters: transmission, reception, correct presentation and appropriate action by the pilot or by a UAS detect and avoid system. Successful reception alone does not demonstrate successful tactical deconfliction.

EASA states that, although ADS-L uses substantially lower transmission power than traditional ADS-B, air-to-air ranges over 10 km can be achieved, subject to installation. This reinforces the need for the CAA to assess operational performance rather than assuming that higher transmission power or use of 1090 MHz is inherently necessary for every GA category.

EASA's developing ADS-L architecture addresses unmanned-aircraft integration. With its ADS-L version 2, the protocol is intended to support uplink of drone Remote ID information rebroadcast by ground stations, improving mutual situational awareness between GA and UAS. This is relevant because BVLOS/UAS integration is one of the objectives relied upon in support of the UK mandate: it demonstrates that there is already a European architecture being developed to address that requirement without necessarily requiring all GA aircraft to adopt a UK-specific 1090 MHz solution.

12. Are there groups, sectors, aircraft types or regions that would be affected more than others by the proposed EC Mandate, either positively or negatively?

Response format: Free-text response.

Explain and provide evidence where possible, including equality, accessibility or unintended consequences. Consider both costs and benefits.

BHPA's suggestions for things to think about when writing your own answer:

- Would the rule affect you more because you fly a light, low-value, cockpit-less aircraft with no fixed electrical system?
- Do you fly in mountains, coastal/ridge sites or competitions where terrain masking and local traffic density are higher?
- Do you fly abroad, or do overseas pilots regularly visit the sites you use? What would a UK-only requirement mean in practice? Many pilots travel between mainland Europe and the UK to fly. If ADS-L is increasingly part of the EC environment there, what practical effect would a different UK-only requirement have?
- Could the rule make flying less accessible to newer pilots or people using lower-cost second-hand equipment?
- Are there benefits to you personally, or would most of the benefit go to BVLOS operators or airspace-service providers?

Which sectors would be affected most? — BHPA's position and response:

Cockpit-less, weight-sensitive and low-cost aircraft would be disproportionately affected, including hang gliders, paragliders, paramotors, powered hang gliders, parascenders, speed wings, parakites and

human-powered aircraft. Mountain, coastal and ridge flying creates additional terrain-masking issues. A UK-only solution would also disadvantage UK pilots flying abroad and visiting overseas pilots. Many BHPA pilots routinely travel to mainland Europe to fly and take the same aircraft, harness and instruments with them. A UK requirement that does not interoperate with ADS-L could therefore create a direct and disproportionate burden by requiring separate equipment for UK and European flying, while potentially discouraging visiting European pilots from flying in the UK.

13. Based on the evidence available to you, do you consider the CAA's preferred approach would meet the safety and integration objectives set out in Chapter 3?

Response format: Closed-choice response, followed by a free-text explanation.

Explain your reasoning and provide supporting evidence. Identify any aspects that would not meet the objectives and the changes you would propose.

BHPA's suggestions for things to think about when writing your own answer:

- Would the proposal work equally well for local soaring, dense ridge or thermal traffic and cross-country flying, or should different operating environments be treated differently?
- Does the proposed approach make sufficient use of existing EC systems such as FLARM, FANET and network-based systems, or could greater interoperability achieve the objective more effectively?
- If you fly in mainland Europe, do you think the UK approach should be compatible with the developing European ADS-L system rather than requiring separate UK-only equipment?
- If BVLOS drone integration is one of the intended benefits, do you think sufficient responsibility is being placed on the drone operator and its detect-and-avoid system to detect and avoid crewed aircraft like hang gliders and paragliders?
- Do you think the CAA has demonstrated that large numbers of additional 1090 MHz ADS-B transmissions will work effectively in areas with dense GA activity, including busy soaring sites and flying competitions?
- If you do not think the present proposal meets the CAA's objectives, what changes would make you more likely to support it — for example defined local flying areas, site beacons, suitable EC for cross-country flying, multi-platform interoperability (such as ADS-L) or a different technical approach?

Would the CAA's preferred approach meet its safety and integration objectives? — BHPA's position and response: No, not in its present form

The BHPA believes the proposal may make some aircraft visible to some receivers, but there has been no demonstrated reliable tactical deconfliction or proportionate net safety benefit across all sectors.

The BHPA continues to support a framework based on:

- *defined safety outcomes,*
- *multi-platform interoperability,*
- *BVLOS UAS detecting and avoiding crewed aviation,*
- *beacons for defined local flying areas,*
- *suitable EC for cross-country flight,*
- *operational testing of dense traffic and 1090 MHz impacts,*
- *voluntary/risk-based EC for cockpit-less aircraft until a suitable solution is demonstrated,*
- *European compatibility, including interoperability with ADS-L and avoiding a separate UK-only equipage requirement for pilots who routinely fly in mainland Europe; and,*
- *proportionate funding arrangements.*

In addition, the BHPA recognises that European ADS-L is also being developed to support UAS integration, including future rebroadcast of drone Remote ID information to ADS-L users. The BHPA does not suggest that ADS-L presently replaces certified ADS-B or ATM surveillance. Its relevance is that it provides an existing and developing European EC architecture for GA and UAS interoperability which the UK DfT and CAA should recognise and accommodate before imposing a divergent national requirement.