Submission: 140

David Boulter – Gliding Australia

Gliding Australia Response Summary

- GAus supports an ADS-B mandate, with qualifications. GAus does not accept all the proposals and time frames.
- GAus supports fully compliant ADS-B IN and OUT in Class A and C airspace
- GAus supports the carriage of ECs in Class E airspace
- GAus supports the carriage of ECs in Class G airspace, especially in high traffic areas.
- GAus supports the carriage of ECs in Class D airspace
- GAus considers the goal of all aircraft having ADS-B IN and OUT a sensible outcome.
- GAus does not support only having fully approved ADS-B equipment. ECs must be considered for traffic awareness and advice.
- GAus supports equipping all IFR aircraft with ADS-B IN by 2033, preferably earlier.
- GAus supports Drones having ADS-B IN and for altitudes above 400FT having ADS-B OUT
- GAus supports the model for AAM aircraft, considering little is known in this airspace.
- GAus opposes the Select aerodrome, RPT aerodrome and Certified aerodrome models.
- GAus opposes rigid mandates to prescriptive technological solutions that may become obsolete, overtaken by development of alternative systems and data protocols. GAus supports participation in ICAO and EASA working groups developing new solutions.

Gliding Australia
glidingaustralia.org

THE GLIDING FEDERATION OF AUSTRALIA INC,
PO Box 2306 Gladstone Park VIC 3043
Phone +61 (03) 9359 1613 ABN: 82 433 264

Gliding Australia's feedback on Potential future expansion of Automatic Dependent Surveillance Broadcast (ADS-B) mandate in Australia.

Gliding Australia (GAus) welcomes the opportunity to provide feedback on the Proposal and provide the working group the Gliding community's perspective.

Australian glider pilots have embraced FLARM and EC (Electronic Conspicuity) devices although neither have been mandated. The benefits as an aid to "Alerted See and Avoid", the main process for collision avoidance, are self-evident and glider operators have voluntarily fitted them to their aircraft accordingly. FLARM is nearly universally fitted, and EC devices have been installed in many gliders operated in high traffic areas, near regional transport airfields, and high-altitude soaring sites.

FLARM is used for collision avoidance between gliders. As a lower power transmitting and receiving device the relative short range is acceptable for this role. Its anti-collision warning algorithms are optimised for prediction of risks for turning aircraft, operating in close proximity to other FLARM-equipped aircraft. It is not an air traffic management tool, rather a tactical aid to alerted see-and-avoid. EC devices make gliders more conspicuous to other airspace users via ADS-B Out. ECs can receive position data from other airspace users via ADS-B IN and can also receive FLARM signals but not in Australia as the manufacturer does not support the Australian FLARM frequency. Mandating this would be helpful. All EC users could then see ADSB and FLARM on their traffic displays.

Few gliders carry a Mode S transponder, although most new gliders imported into Australia are fitted with transponders. This has cost, weight, power consumption and airworthiness implications. GAus recommends that pilots wishing to fly at very high altitudes (above FL240) fit transponders to their gliders, with upgraded power systems. The Australian gliding altitude record is FL330.

Currently only a few devices are available to gliders that can integrate FLARM and ADS-B IN into one cockpit display. It is expected that this integration will improve over time.

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- GAus supports the carriage of ECs in Class E airspace
- GAus supports the carriage of ECs in Class G airspace, especially in high traffic areas.
- GAus supports the carriage of ECs in Class D airspace

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- GAus supports equipping all IFR aircraft with ADS-B IN by 2033, preferably earlier.
- GAus supports Drones having ADS-B IN and for altitudes above 400FT having ADS-B OUT
- GAus supports the model for AAM aircraft, considering little is known in this airspace.
- GAus opposes the Select aerodrome, RPT aerodrome and Certified aerodrome models.
- GAus opposes rigid mandates to prescriptive technological solutions that may become obsolete, overtaken by development of alternative systems and data protocols. GAus supports participation in ICAO and EASA working groups developing new solutions.

Explanation of Gliding Australia Responses

GAus supports fully compliant ADS-B IN and OUT in Class A and C airspace, with qualifications

Expanding the IFR mandate to include ADS-B IN is considered a good idea and would mitigate the uncertainty of being seen by many aircraft. IFR aircraft rely on ATC for separation in controlled airspace, however when they transition to Class G airspace ATC can't necessarily provide traffic separation information. Regional airline aircraft are fast compared to Gliders. See and avoid is difficult and an ADS-B IN display would provide them enhanced traffic information, noting that many gliders carry EC devices. The risk and cost of this would need to be investigated. Regional airlines are currently calling on the gliding frequency when descending and departing regional airfields in Class G where gliding is known to take place. Gliding Australia publishes an agenda of Gliding activity monthly and distributes it to Commercial operators plus anyone who is interested. The consequences of any collision with an airliner would be catastrophic.

GAus supports the carriage of ECs in Class G airspace, especially in high traffic areas.

In Class G airspace Gliding Australia supports the carriage of ECs in high traffic areas. High traffic areas would be around aerodromes that have regional transport or high numbers of any other airspace users that are non-gliding. Gliding aerodromes with no other traffic around would not need ECs in our view.

GAus supports the carriage of ECs in Class D airspace

The current ECs have an embedded TSO 199 compliant GPS, so the location accuracy is far better than a reported position from a pilot as now applied in Class D zones. If the tower has ADS-B IN, the range of a fully compliant ADS-B would not be required for a small Class D zone. The cost, installation and maintenance of a fully compliant ADS-B would be a burden to any glider wanting to use a Class D aerodrome.

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GAus supports the carriage of ECs in Class E airspace

In Class E airspace Gliding Australia supports the goal of carriage of ECs in Gliders. Gliders are exempt from carrying transponders in Class E airspace as they do not have a means of maintaining power other than batteries. Gliders do not fly IFR and do not normally communicate with ATC so fully compliant ADS-B is not required or cost effective. Depending on ATC receiving capability they may or may not receive the Gliders EC device. As a backup to ATC, ADS-B IN would provide pilots a means to monitor any other conflicting traffic. The risk of collision with a Glider in Class E airspace has been assessed as very low, however EC and ADS-B IN in addition to FLARM would mitigate some of this risk. It would take some time to advise and equip the remaining Gliders with ECs who may access Class E airspace. ECs are easy to install as they are self-contained; however, the lack of ADS-B IN display is currently problematic.

GAus considers the goal of all aircraft having ADS-B IN and OUT a sensible outcome. GAus does not support only having fully approved ADS-B equipment.

The potential models detailed in figures 10,11,12 and 13 of the Proposal provide insight into the working group's solutions and time frames for various airspace users. Gliding Australia considers the end goal of all aircraft having ADS-B IN and OUT in all airspace as an outcome sensible, however having all this equipment as fully approved is not realistic and the time frames are not achievable in our view. ECs must be considered. EC and ADS-B must be augmented by FLARM and other SA tools to achieve viable glider-to-glider collision risk mitigation. Availability of integrated units is very limited, made more problematic by AUS FLARM frequency differing from the rest of the world.

GAus supports equipping all VFR aircraft with ADS-B OUT and IN by 2028.

The model for VFR aircraft shown in figure 10 has all aircraft equipped with ADS-B OUT and ADS-B IN in Class G,E,D and A airspace by 2028. This is only achievable with EC devices in our view and only if the supplier can provide enough devices. Phasing out the EC's and replacing them with approved fully compliant equipment beyond 2033 is opposed by Gliding Australia. Fully approved equipment with its associated purchase cost, installation requirements and ongoing maintenance requirement is not justified in our view. The incremental reduction in risk and cost would need to be justified and the benefits are not obvious. Phasing in and out a technology with the most life span of 8 to10 years is not palatable, practicable or risk justified. Benefits for Gliding of this model would give us confidence that non-Gliding aircraft including new airspace users would have the capability of an aid to help them see and avoid Gliders. The cost to equip all Gliders with EC's, considering there is a 50% rebate available until 2027 is manageable at about $800K. The cost to convert the whole fleet to fully approved equipment beyond 2033 is of the order $17M, plus installation costs, in today's money and probably a lot more as Gliding Australia does not have the installation and ongoing maintenance capabilities.

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GAus supports equipping all IFR aircraft with ADS-B IN by 2033, preferably earlier.

The model for IFR aircraft shown in figure 11 has IFR aircraft equipped with ADS-B IN by 2033. This is supported by Gliding Australia, however the for the Regional Airlines and any other fast moving IFR aircraft using regional aerodromes, in Class G, where Gliding is present, an earlier date would be desirable. We note that many gliders using EC devices are not visible in many Regional Airlines due to their lack of ADS-B IN capability.

GAus supports Drones having ADS-B IN and for altitudes above 400FT having ADS-B OUT

The model for Drones shown in figure 12 has the requirement for ADS-B IN so the Drones may detect piloted aircraft and take avoiding action. This is supported by Gliding Australia. It is understood that all Drones having ADS-B OUT capability would potentially create congestion issues on 1090MHz and congestions on the traffic screens. A risk-based requirement for ADS-B OUT for Drones will be required and reviewed accordingly when available. Superior risk mitigation would be achievable if unmanned aerial systems also employed FLARM detection, as is increasingly the case in UK and EU.

GAus supports the model for AAM aircraft, considering little is known in this airspace.

The model for AAM aircraft shown in figure 13 and would require fully approved equipment from day 1 and would be operating under VFR and IFR rules. GAus notes there are already risks and complexities associated with mutual separation at non-controlled aerodromes, so circuit entry and exit processes in mixed environments require much attention. This is supported by Gliding Australia however little is known of these Operations currently.

GAus opposes the Select aerodrome, RPT aerodrome and Certified aerodrome models.

The alternative models for VFR Operations shown in figure 14 require a move to fully approved ADS-B IN and OUT by 2033 however at limited aerodromes. Gliding Australia opposes these models for the reasons described above of the costs, practicality and limited incremental benefit, and residual risks in mixed aviation environments. Limiting the aerodromes in Class G based on risk however is sensible and supported.

As a general comment, GAus seeks much improved visibility of actual risk analyses and matrices, rather than general assertions. These changes will have far-reaching, long-lasting implications, and evidence of rigorous publicly available analysis is lacking.

Gliding Australia looks forward to further participation with the development of any expanded ADS-B mandate and is open to any questions or clarifications.

Dave Boulter	Drew McKinnie	Graham Brown
Executive Manager Operations (HOFO) Gliding Australia	Safety Manager Gliding Australia	National Airfield, Airspace & Avionics Gliding Australia

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