Australian Government
Civil Aviation Safety Authority

SUMMARY OF CONSULTATION

New standards for Automatic Dependent Surveillance – Broadcast (ADS-B) equipment for VFR aircraft

Civil Aviation Order 20.18 (Aircraft equipment — basic operational requirements)

CASA 61/14 – Direction – use of ADS-B in foreign aircraft engaged in private operations

Date	June 2020
Project number	AS 16/06
File ref	D20/57257

Overview

CASA published Consultation Document (CD) 1905 AS — *New standards for Automatic Dependent Surveillance – Broadcast (ADS-B) equipment for VFR aircraft* — on the CASA Consultation Hub from 12 February to 13 March 2020. Aircraft owners, pilots, industry stakeholders and other interested parties were invited to comment on the proposed changes to the standards and requirements for ADS-B technology used in aircraft operated under the visual flight rules (VFR).

Respondents

We received a total of 113 responses from individuals and organisations. Seventy-eight respondents consented to their comments being published on the CASA website, 33 requested their comments remain confidential and two responses were from CASA officers.

We value the contributions made by all respondents. Where permission to publish has been given, individual consultation responses can be found the Consultation Hub <https://consultation.casa.gov.au/regulatory-program/cd-1905as/>

Key feedback

CD 1905 AS proposed a number of equipment configurations—including how they could be used and what limits would apply—and some related or consequential amendments to other regulations. Respondents were asked to indicate a position and comment on each proposal as well as to comment on the overall consultation.

The sections below detail the feedback from respondents in relation to each key proposal in the consultation. Specific comment is summarised later in the document.

Proposal 1 – Mode S transponder with Class B TABS position source device

We proposed an equipment configuration of a Mode S transponder connected to a Class B traffic awareness beacon system (TABS) position source device. The configuration maintains its basic Mode S functionality that is detectable by air traffic services (ATS) secondary surveillance radar and traffic collision avoidance system (TCAS). The useability of the ADS-B information will depend on the capability of the GNSS position source - lower end generally useful for situation awareness, higher end potentially useful for ATS surveillance separation.

Figure 1 below illustrates how the 113 respondents reacted to proposal 1.

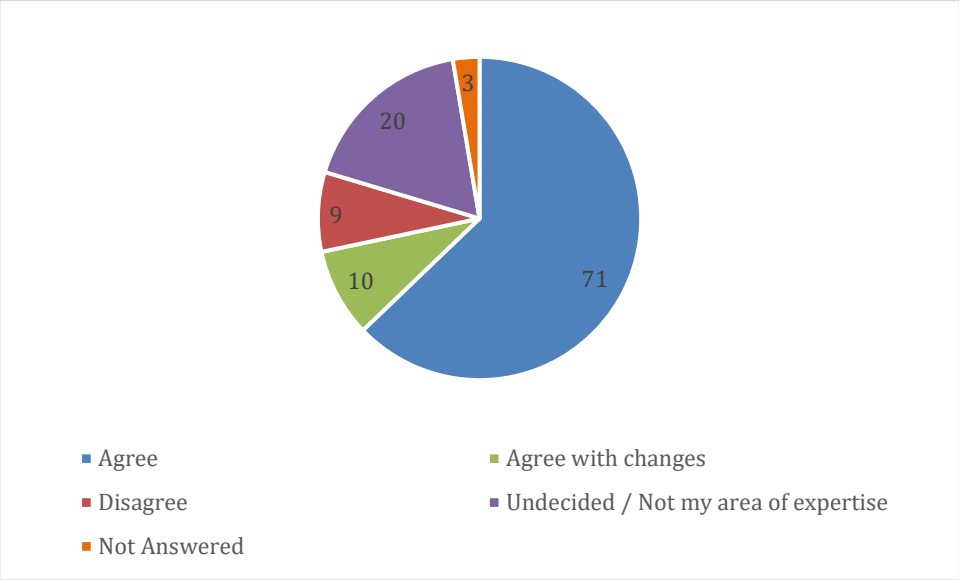

Figure 1: Responses to proposed Mode S transponder with Class B TABS position source device

Proposal 2 – Integrated TABS device

We proposed an integrated TABS device. This combines a GNSS position source and an ADS-B transmitter as a single device. An integrated TABS device is visible to aircraft ABS-B receiving equipment and aircraft fitted with TCAS but may not be detected or be useable for surveillance separation by ATS.

Figure 2 below illustrates how the 113 respondents reacted to proposal 2.

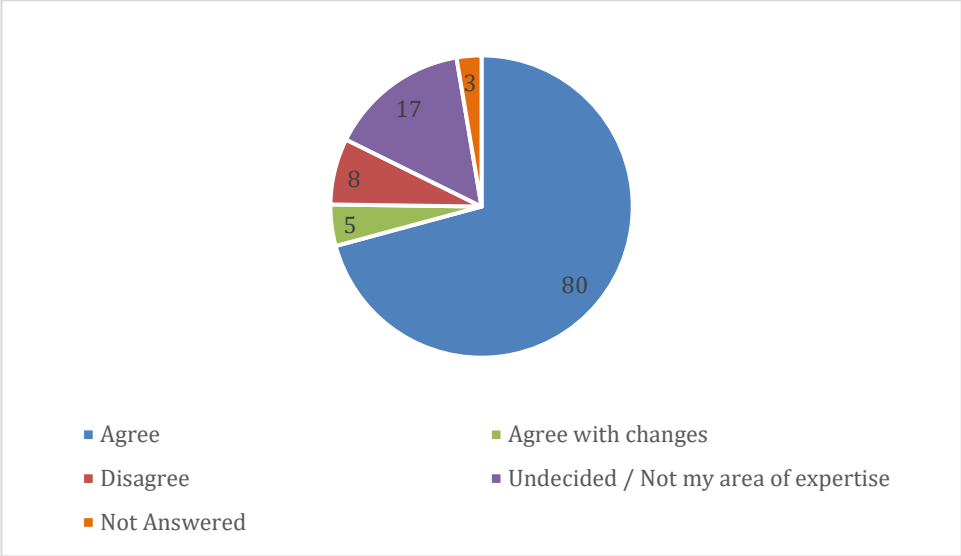

Figure 2: Responses to proposed integrated TABS device

Proposal 3 – Electronic Conspicuity (EC) device

We proposed an Electronic Conspicuity (EC) device. Similar to an integrated TABS, an EC device combines a GNSS position source and an ADS-B transmitter and may also include ADS-B receiving capability. An EC device is visible to ABS-B receiving equipment (including other EC devices with receiving capability), but unlike an integrated TABS device it is not visible to TCAS and may not be detected or usable for surveillance separation by ATS.

Figure 3 below illustrates how the 113 respondents reacted to proposal 3.

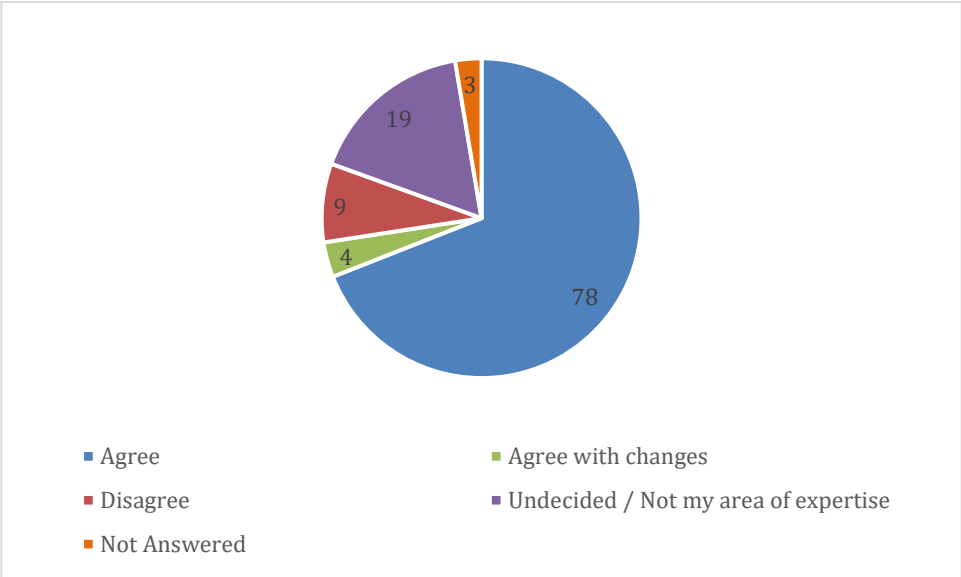

Figure 3: Responses to proposed Electronic Conspicuity (EC) device

Proposal 4 – Allow technically capable, but not formally authorised, transponder and ADS-B equipment in certain aircraft

We proposed to fast-track the future provision in Part 91 of CASR, which would allow certain aircraft to be equipped with technically capable, but not formally authorised, transponder and ADS-B equipment.

Figure 4 below illustrates how the 113 respondents reacted to proposal 4.

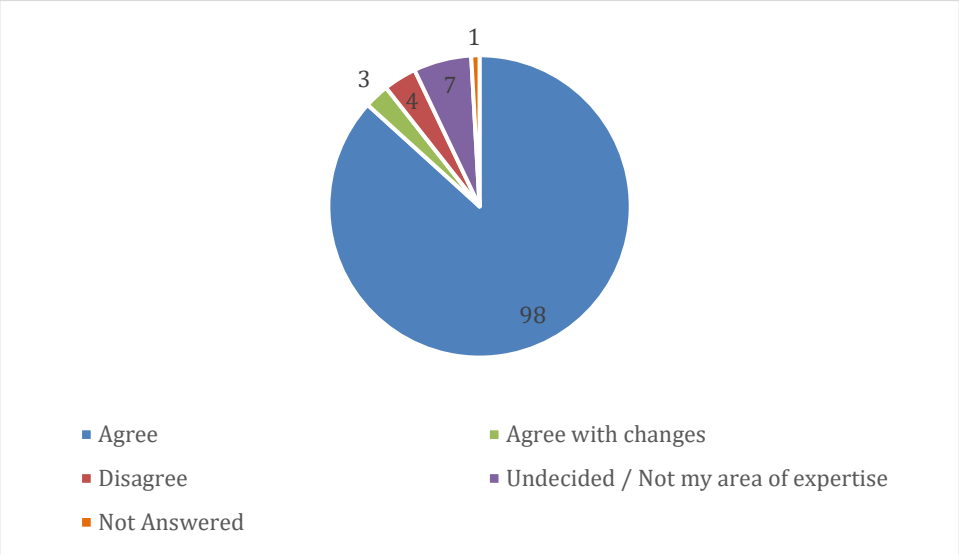

Figure 4: Responses to proposal allowing NON-TSO'd transponder and ADS-B equipment

Proposal 5 – Amend the existing VFR transponder requirements

We proposed to update the existing regulatory requirements for carriage of a transponder in a VFR aircraft with the aim of:

- Rectifying an inconsistency between regulation and the current Aeronautical Information Publication (AIP) requirements, particularly - the regulation not matching a long-standing AIP requirement for VFR aircraft to carry a Mode A/C transponder for operations above 10 000 ft in Class G airspace.
- Aligning transponder carriage requirements with the proposed ADS-B equipment standards under this consultation.

Figure 5 below illustrates how the 113 respondents reacted to proposal 5.

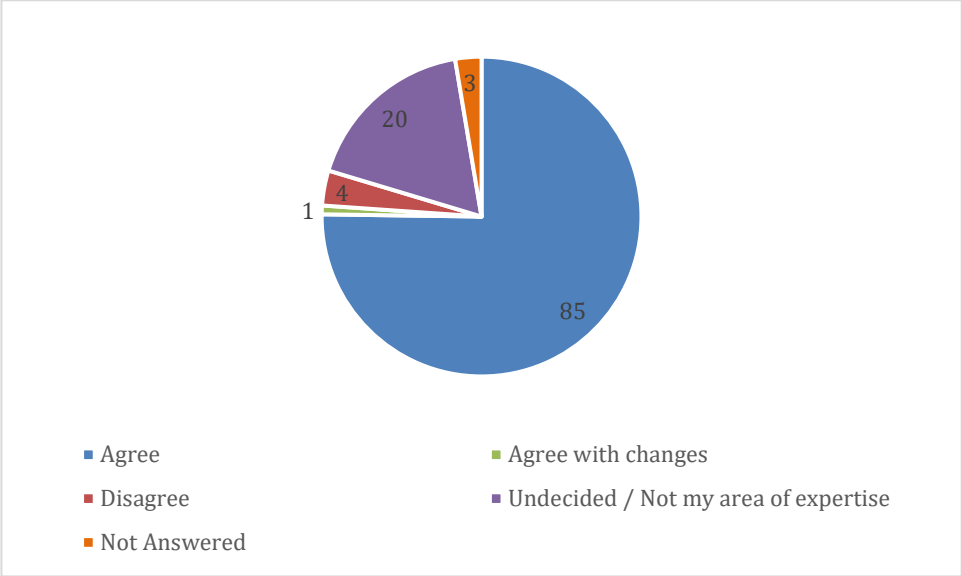

Figure 5: Responses to proposed amending of existing VFR transponder requirements

Proposal 6 – Consequential or housekeeping amendments to CAO 20.18

We asked for comment about carrying out consequential or housekeeping amendments to CAO 20.18. In particular we focussed on removal of references to implementation dates which have now passed, to detail additional ways for ADS-B equipment to flag transmissions as not meeting appropriate standards, and referencing the latest overseas standards for ADS-B OUT being suitable for use in Australia.

Figure 6 below illustrates how the 113 respondents reacted to proposal 6.

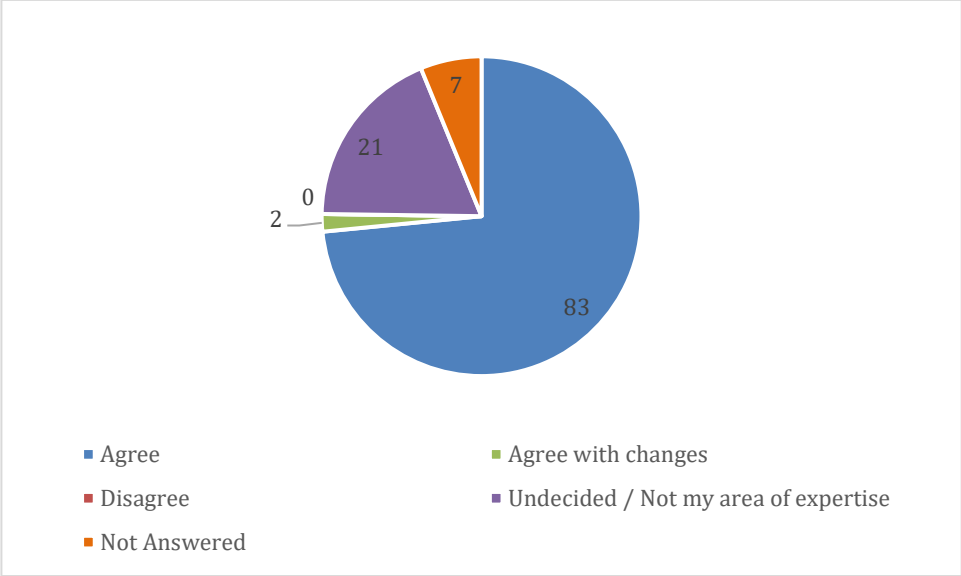

Figure 6: Responses to proposed CAO 20.18 consequential or housekeeping amendments

Proposal 7 – Update only the standards applicable to overseas registered aircraft engaged in private operations

We asked for comment about extending the application of the proposed ADS-B standards for VFR aircraft to only overseas registered aircraft engaged in private operations. The rationale for not extending the application to other types of operation was to avoid the cost of amending three other legislative instruments where it would be unlikely for foreign registered aircraft engaged in aerial work, charter and RPT would operate in Australia under the VFR. Instead, provisions for such aircraft would be addressed when Part 91 of CASR comes into effect at the end of 2021.

Twenty-eight people provided responses to this proposal, mostly positive or neutral.

Additional comments

We asked for any additional comment about CD 1905 AS.

Seventy-seven people provided specific additional comments.

Discussion of comments

Several respondents, including those agreeing or disagreeing with specific proposals, provided additional comment about the use of ADS-B technology. The following subsections summarise the main themes and provide CASA's response.

Cost of equipment and installation

The cost of equipment and installation was a recurring theme in responses, including:

- "Cost of TSO'd[1] equipment is too high with no benefit today VFR ops over non TSO'd items."
- "Agree with implementation however cost effective devices should be allowed to encourage buy in from [General Aviation (GA)]."
- "I agree that a low cost option should be available and used where appropriate."
- "Having it mandatory would mean mass production of these devices, which should then reduce the cost of the devices."
- "Have any of you tried to get a licensed electrical instrument radio engineer to carry out this work in the private sector … any radio work or fault finding runs into thousands of dollars in the GA world … the industry needs help that will allow the option to be fitted at a reasonable cost."
- "CASA should seek to provide funding …"

CASA response

We recognise that equipment and installation costs are a significant deterrent. A prime consideration in the consultation was enabling the use of lower cost equipment.

[1] A reference to equipment being authorised under a Technical Standard Order (TSO) - which is a minimum performance standard issued by a regulatory authority for specified materials, parts, processes, and appliances used on civil aircraft.

The comment about a lack of installers and the expense of installing is acknowledged and understood. One of the key proposals is to permit the use of a portable device that does not require the use of an installer. Further, there are proposed amendments in Part 66 of CASR (*Aircraft engineer licensing regulations*) for the introduction of self-study pathways that improve the opportunities for trainees to complete their licensing requirements (refer to the consultation on this subject - CD 1908SS[2] and the proposed introduction of Part 43 of CASR under CD 1812SS[3]. These proposals aim to reduce costs for operators. The Part 43 proposal will allow alterations to GA aircraft without requiring a modification approval under Part 21 of CASR.

Use of Non-TSO'd equipment, including in type certified aircraft

Several respondents made comments, either generally or in favour of the use of non-TSO'd equipment in type-certified aircraft. Comments included:

- "… non TSO'd equipment should be permitted, to ensure that lower costs achieve a high take up across the entire aircraft fleet."
- "The non TSO'd solution is the most viable way to achieve this roll out with lower costs ensuring a higher % of take up across the fleet."
- "All items should be “TSO” are up to a standard. Light sport aircraft are a hazard as it stands."
- "Non TSO instruments should be allowable if they further enhance safety and do not detract from any current regulatory equipment or servicing standards … We need an avenue to spare the price gouging that comes with TSO compliance."
- "Yes agree if I can remove my mode C fit a non TSO ADSB out and still have access to Class C and D and E, below 10,000 feet. This would be a great outcome for me and I would make the purchase."

CASA response

To avoid doubt, CASA is not proposing or intending to automatically allow installation of non-TSO'd equipment in type-certified aircraft.

Current rules allow installation of any equipment (even without TSO authorisation), however, only if the installation is installed in accordance with the certification requirements of the aircraft. The testing costs tend to negate any base equipment cost savings.

TSO is a well-established way to show that the aircraft meets the type certification basis by assuring that it meets a minimum performance specification. TSO reduces the amount of verification required by type certified aircraft manufacturers and modifiers as the authorisation for the TSO states to what it has been tested.

The introduction of Part 43 of CASR under CD 1812SS will provide a measure of relief in terms of allowing alterations to GA aircraft without requiring a modification approval under Part 21 of CASR. This may reduce installations costs but will not obviate the need for TSO authorisation or evidence of adequate engineering approved under Part 21 of CASR.

---

[2] CD 1908SS - Post-implementation review of CASR Part 66
[3] CD 1812SS - Part 43 - maintenance of general aviation and aerial work aircraft

Fitment of ADS-B for VFR aircraft - mandatory vs voluntary

Six respondents said there should be mandatory fitment of ADS-B OUT in aircraft, while three specifically said that fitment should remain voluntary.

CASA response

We have no intention in this regulatory change project to introduce a mandate. Fitment of ADS-B transmitting equipment in aircraft operated to the VFR will remain voluntary.

Proposed usage limitations will preclude a significant segment of the VFR fleet

Four respondents identified that the proposed usage limitations would preclude or prevent a significant segment of the VFR fleet using lower cost ADS-B transmitting equipment or mentioned that the standards should accommodate future CASA rulesets. Specifically, respondents said:

- "Why do you consider the enhancement could benefit all aircraft other than charter / RPT? I was excited about this be a potential enhancement for a fleet of 30+ aircraft and for some reason you've excluded commercial operations! The take up potential could have been huge."
- "The national aerial firefighting fleet includes aircraft with MTOW greater than 5700kg, aircraft that cruise at greater than 250 kts, and a mix of charter and non-charter aircraft. We would not like to see an arbitrary and mandatory division of the fleet into two or three technology choices based on the 'Intended for operations...' clause."
- "the proposal is inconsistent in including the use of these devices in gliders in both private/sport and CHTR operations (notwithstanding that CAO 95.4.1 is obsolescent at this time) but only including privately-operated balloons [thus balloons operated in the CHTR/AWK category]. By their nature, balloons are almost stationary obstacles relative to both IFR and VFR aeroplanes and rotorcraft, but ATC and other pilots could well make use of EC devices to assist in identifying the position of balloons, including in terminal airspace"
- "… the reference to 95- series aircraft will need to include references to suitable future Part 103 aircraft."

CASA response

The proposed limitations for Proposals 1 and 2 were based on our interpretation of equivalent standards in Europe (which appeared to limit the use of low power equipment to private category aircraft). However, because of this feedback, we have reassessed the relevant standards and now consider there should be no limitation based on category of operation, MTOW or cruise speed. The final changes to CAO 20.18 and rules for foreign registered aircraft operated to the private category will reflect this reassessment.

Note: proposal 3 did not have similar usage limitations.

Updating a transponder to enable lower end ADS-B transmission must not cause loss of access to Class C and D airspace currently allowable with a Mode A/C transponder

A respondent said in relation to Proposal 1 (Mode S transponder integrated with Class B TABS): "I currently have a mode C transponder and have access to class C. By upgrading to Class B TABS, I would not want to lose access to class C or D."

CASA response

Upgrading to Mode S transponder integrated with Class B TABS will not cause a loss in access to controlled airspace compared to that provided by a Mode A/C transponder. The Mode S transponder component of Proposal 1 of itself (whether or not it also outputs ADS-B) will enable the same airspace access as enabled by a Mode A/C transponder.

Configurations are not suitable or optimal for some aircraft types

Nine respondents gave feedback identifying one or more configurations were not suitable or optimal for a particular aircraft type or not suitable because they would not provide access to controlled airspace. The following is a summary of comments and quotes:

- "Disagree. If the lower end is no good for ATC clearances, FLARM[4] is a better and cheaper option."
- Mode S transponder systems are unsuitable for gliders as the battery capacity is insufficient, and Mode S requires a centralised surveillance and communication system (i.e. ATS) for operation *(Note: this is a summary of the respondent's full comment)*.
- "Hot air balloons, microlights, sailplanes etc should be treated differently to fixed wing powered aircraft in respect to use of lower end ADS-B devices for access to controlled airspace."
- "[There is better] equipment available that works in conjunction with an existing mode A/C transponder."
- "Manufacturers should be encouraged to include compatibility with FLARM devices using the Australian frequency of 921MHz"
- "I would have thought these [integrated TABS] would be good enough for certain Class C ops where the radar is close. For example, Coastal north/south past Adelaide and perhaps into Canberra and Hobart."
- "For hot air balloons, the reasoning for not allowing these devices in Class C airspace, range, speed, altitude and airframe shielding are not relevant as for fixed wing aircraft. Hot air balloons are not able to generate power and the requirements prevent the most practical equipment being implemented. This reasoning also applies to microlights, sailplanes and other recreational aircraft."
- "I fly LSA aircraft under RAAus, I have OzRunways and a Dynon ADS-B in receiver that also shows up any aircraft with ADS-B transponder within about 12 miles. This is all I need for my safety"

[4] FLARM is a traffic awareness and collision avoidance system developed by FLARM Technology Ltd.

- "ADS-B in can be provided cheaply for these systems which are manufactured in the US by Open Flight Solutions. https://www.openflightsolutions.com/"

CASA response

The benefits of FLARM are not disputed. While FLARM-equipped aircraft can detect other aircraft fitted with FLARM or ADS-B transmitting equipment, neither ATS nor aircraft fitted with ADS-B or TCAS can detect FLARM transmissions. Despite the right of way rules, a powered aircraft that has to give way to a glider has the lower probability of detecting a conflict. Therefore, we are recommending ADS-B, as it conforms to an open international standard that is readily useable by a large variety of aircraft systems, including those installed in large commercial aircraft.

It is not a certainty that Mode S transponders lack the battery capacity or endurance for glider operations. Modern battery technology and low power transponders allow many hours of operation. Gliders in several countries must have a Mode S transponder to gain access to higher level airspace.

While a simple Mode S transponder requires a centralised system for provision of situation awareness services, this doesn't apply for a Mode S transponder with ADS-B OUT. In fact, a Mode S transponder with ADS-B OUT is the most suitable method for direct aircraft-aircraft situation awareness because it has the greatest operating range and is fully compatible with TCAS.

We are aware of ADS-B transmitting equipment fitted to an aircraft's wingtip or tail that works in conjunction with an existing mode A/C transponder. However, the lower cost equipment only works on the USA's Universal Access Transceiver (UAT) frequency (978MHz). This is incompatible with ADS-B equipment already used in Australia.

Regarding the comment about making EC devices and ADS-B 'bridge' devices compatible with the Australian FLARM frequency, we asked a manufacturer, and this is not possible at this time.

Regarding certain lower end ADS-B configurations being potentially suitable for access to controlled airspace (including for certain aircraft types), the critical issue is integrity of the ADS-B information, not the aircraft providing the information. Unless a particular integrated TABS device or EC device is able to transmit a Source Integrity Level (SIL) of 2 or more[5], it is unlikely to be able to substitute for a transponder where carriage of the latter is currently required for access to Class C (radar) airspace.

Note: For some time into the future, a Mode A/C/S transponder (with or without ADS-B) will be required equipment for VFR aircraft seeking access to controlled airspace wherein ATS uses surveillance separation as the primary method of air traffic control. In general, this applies to the Class C terminal airspace around major airports.

[5] Source Integrity Level (SIL) is a numeric value (0, 1, 2, or 3) included in an ADS-B transmission. It indicates to all receivers the GNSS position source's probability of exceeding the reported integrity value and is set once at the time of installation and is based on design data from the position source equipment manufacturer. A SIL of 2 or 3 is required for ADS-B position information to be usable for ATS surveillance separation. A SIL of 1 is usable only for situation awareness. A SIL of zero may be detected by some lower-end ADS-B receivers, but not by TSO-qualified ADS-B receivers.

Regarding the comments about an ADS-B receiver being sufficient, the problem is that the respondent's aircraft may not be visible to other aircraft. This reduces the overall safety net provided by mutual 'see, BE SEEN and avoid'.

Education is critical for pilots to understand the capability, limitations and risks associated with ADS-B equipment

Three respondents mentioned the critical need for pilot education, particularly:

- "Currently EFB's only show their own traffic, however this proposal has the potential to greatly increase the number of aircraft visible in the area of operation but it won't cover everyone unless mandatory so still need to look out the window!"
- "… Education of the limitations of this option for Class C operations would be critical to allow informed decision making by aircraft operators."
- "My concern with ADS-B In, having used it extensively in America, is that it tends to divert attention from outside, where see and avoid is paramount, to the screen inside the aircraft … The prime task of aviating can be forgotten ... ADS-B can be a blessing and a curse."
- "While [organisation] advocates for the increased use of ADS-B for select RPAS, it understands that such use must be informed to ensure a false sense of safety is not introduced. Accordingly, the already expanding use of ADS-B on RPAS warrants the introduction of some level of training on ADS-B for RPAS operators.

CASA response

These are important factors in relation to ADS-B technology. There is significant potential for distraction or preoccupation with any in-cockpit display of traffic information. It is also true that the ADS-B information will not be a complete picture of nearby traffic. Therefore, it will always remain a cardinal safety principle that the pilot must focus attention outside the aircraft and to maintain an effective visual scan.

CASA has an extensive range of education resources on human factors for pilots including one on design and automation <https://www.casa.gov.au/safety-management/book-page/safety-behaviours-human-factors-pilots-2nd-edition-resource-booklet-10-design-and-automation> and one on situational awareness <https://www.casa.gov.au/safety-management/book-page/safety-behaviours-human-factors-pilots-2nd-edition-resource-booklet-6-situational-awareness>, which specifically deal with this matter. We are also preparing an education campaign to complement the final standards, which will include advice on human factors issues.

Technical standards are cost-prohibitive or beyond what is necessary for air-to-air surveillance

Three equipment manufacturers and a manufacturer's association pointed out that the proposed standards either exceed what is required for air-to-air surveillance or have associated costs that make the options unattractive for production. In particular, the feedback said:

- "The qualification requirements for Class B TABS are beyond what is necessary for air-to-air surveillance; cheaper but suitable technical standards [for example RTCA DO-319 (Safety, Performance and Interoperability Requirements Document for Enhanced Traffic Situational Awareness During Flight Operations)] exist and should be considered"

- "… this proposal [Proposal 1] would still need a TSO C166B or later, ES transponder and the currently available IFR certified ES transponders from various manufactures already have a built-in GPS position source. The current, ADS-B for IFR Aircraft, mandate in various parts of the world, has driven the purchase price of the combined GPS- ES transponder units close to the level of ES transponder only."
- "Since there are no currently available devices it is difficult to see that there is any value in including this option. It is unlikely that a manufacturer would bring a device into production solely to serve the Australian market."
- "CASA should also allow EC devices to include GPS position sources capable of SIL levels of 2 or 3, for example a GPS with TSO-C145e certification. Perhaps it would be necessary to limit the SIL value of an EC device to 1 from an ATC perspective - but the underlying GPS device performance should not be also limited."

CASA response

This project (AS 16/06) aims to encourage the fitment of ADS-B by adopting standards that allow the development or availability of equipment at lower cost than full-performance IFR-suitable ADS-B. CASA has reviewed RTCA DO-319, and notes the document is not formally approved either as a TSO or with Supplemental Type Certificate (STC) by a recognised national aviation authority for equipment installations in aircraft. An approval is normally complete if it addresses design assurance, environmental qualification and installation instructions suitable for specific types of aircraft. RTCA DO-319 could form the basis of an approval, but it does not constitute one in its current form. Unless a proponent presents a complete proposal for approving equipment installations under RTCA DO-319, CASA is not willing to consider this document as an applicable standard for use in Australia.

Proposal 1 does not discount the option of a Mode S transponder with integrated GNSS position source. Instead, it gives an additional option for owners of aircraft already equipped with a Mode S transponder but without a GNSS position source, who are seeking a low-cost method to enable ADS-B OUT.

The unavailability of integrated TABS products is acknowledged however, the overarching standard is accepted internationally, and the proposal removes any barrier in the event (however unlikely) of a manufacturer wishing to market an integrated TABS.

We do not believe ETSO-C199 disallows an integrated TABS having a higher-end GPS position source capable of setting a SIL of 2 or 3. Such a device would still have to transmit a SIL of 1 because a SIL or 2 or 3 indicates the device is suitable for ATC surveillance separation. However, only transponder-based ADS-B transmitting equipment are currently useable for ATC surveillance separation. This limitation may be readdressed in the future.

Inconsistency of different SIL values required for same equipment installed in a type-certified aircraft or Sport Aviation/Experimental aircraft

Two respondents made the following comments about the apparent inconsistency of different SIL values being required for the same equipment installed in a type-certified aircraft or a Sport Aviation/Experimental aircraft:

- "SIL level should be predicated on capability of the equipment not the certification level of the aircraft."

- "The rules create a strange position whereby two adjacent VFR aircraft in the same airspace have very different rules regarding fitment of TABS: A Special aircraft : Can use TABS (without TSO certificate) – and hence will be seen by other aircraft & ATC can see it for Situational awareness; [while] a Certified GA VFR aircraft : Cannot use TABS (without TSO certificate) – and hence will be invisible to other aircraft and ATC. … At this time, I do not understand the safety case regarding this position. "

CASA response

The comments arose because the consultation document cited a Class B TABS device, for which the manufacturer requires a SIL of 1 for equipment installed in type-certified aircraft; and a SIL of 3 when installed in a sport aviation or experimental category aircraft. We understand this arrangement is to satisfy FAA requirements for use in the US market. While the proposed Australian standard allows SIL based on actual equipment capability (and not necessarily the certification level of the aircraft in which the equipment is installed), the ADS-B equipment manufacturer has final say in the capability of its equipment. Installers must respect the installation instructions of the manufacturer, and this may result in a SIL 'constraint' based on the certification level of the aircraft.

A fundamental principle with the VFR ADS-B project is for equipment to be installed and operated strictly in accordance with the manufacturer's instructions. CASA would not endorse modifying equipment to operate it beyond manufacturer's instructions.

Updating CAO 20.18 to match the AIP may adversely affect some recreational aircraft operators such as gliders

CASA proposed to update CAO 20.18 to reflect the transponder carriage requirements mentioned in the AIP. This included specifying a requirement for all aircraft to carry a transponder for operations in Class G airspace above 10 000 ft AMSL, if the aircraft has an engine-driven electrical system capable of continuously powering a transponder. A respondent identified this as a significant change which will affect other recreational aircraft operators such as gliders.

CASA response

Transponder carriage (in capable aircraft) for operations in Class G airspace above 10 000 ft AMSL has been a long-standing expectation – specified in the Aeronautical Information Publication (AIP) since 2003. It was introduced under Stage 2C of the National Airspace System (NAS). Unfortunately, the NAS implementation team did not update the legislative instrument that underpinned the AIP requirement.

The current action is to address the anomaly. It should be noted that the requirements will specifically exclude unpowered aircraft like gliders.

Undertake housekeeping amendments on other 'on or after' provisions in CAO 20.18

A respondent said CASA should take the opportunity to undertake housekeeping amendments on other 'on or after' provisions in CAO 20.18. The respondent provided a detailed list of references in Section 9 (ground proximity warning system) of CAO 20.18 that appear to have expired and should be removed.

CASA response

We reviewed the CAO 20.18 references and consider only three – paragraphs 9.1, 9.1A and 9.1B – have undoubtedly expired and can be omitted without possible impact on aircraft operators. These paragraphs will be omitted as part of instrument introducing the final ADS-B standards. The other references - paragraphs 9.1CA and 9.1.CB, and sub-paragraph 9.1C (d) - similarly appear to have expired, however there is a slight chance an aircraft may exist that is equipped in accordance with the provisions given under those references. To avoid any potential impact, these references will be retained in CAO 20.18 at this time.

Future direction

The purpose of this consultation process was to seek feedback on proposals relating to reduced cost ADS-B technology suitable in aircraft operated under the VFR. Overall, respondents strongly supported the proposals, but also gave useful feedback that has enabled us to refine the final standards.

Accordingly, we will proceed with the proposed changes by amending CASA 20.18 (in due course to be adopted in Part 91 of CASR) and instrument CASA 61/14.

However, the following changes to original proposals will be made as a result of feedback:

- The standards for a Mode S transponder with Class B TABS position source and an integrated TABS device will include use in charter or RPT aircraft and will have no speed and MTOW limits.

  Note: the proposed standards for an EC device never had such limits
- The types of aircraft or types of operation eligible to installed non-TSO'd equipment will be expanded to include a manned balloon, or a hot air airship, engaged in aerial work and charter operations, to which CAO 95.53 applies.
- We will ensure the relevant non-TSO allowance given to certain CAO 95-series aircraft is also included in the future Part 103 of CASR.
- Paragraphs 9.1, 9.1A and 9.1B of CAO 20.18 which cover certain expired provisions for ground proximity warning system equipment will be omitted.

We will also produce education and guidance material including Advisory Circulars with guidance on installing and using ADS-B technology.

As stressed in the consultation, fitment of ADS-B transmitting equipment in aircraft operated to the VFR will be voluntary.

Regulation impact statement

CASA assessed the regulatory impact of the amendments and submitted a Preliminary Assessment to the Office of Best Practice Regulation (OBPR). The OBPR made the assessment that a Regulation Impact Statement was not required for the amendments.

Post-script – Notice of final rulemaking

Civil Aviation Order 20.18 Amendment Instrument 2020 (No. 1) and instrument CASA 25/20 – Direction – use of ADS-B in foreign aircraft engaged in private operations Amendment Instrument 2020 (No. 1) were registered on the Federal Register of Legislation on 11 June 2020 and commence on 16 July 2020.