RAAA Position Statement – Voluntary Fitment of ADS-B Technology in VFR Aircraft

The RAAA supports the voluntary fitment of ADS-B equipment to Australian VFR aircraft. We believe that if CASA were to regulate to make the fixed installation of equipment in VFR aircraft an uncomplicated and modest financial investment, the uptake would be reasonable and would produce tangible safety outcomes.

However, to get the most benefits out of ADS-B fitment to VFR aircraft, the optimal solution would involve two discreet elements. The first is to mandate the fitment of ADS-B out to all aircraft. Second, Airservices Australia should allow access to technologies which enable ADS-B in information to be available with EFB applications, such as OzRunways, via the cellular network.

Mandatory Fitment of ADS-B to VFR aircraft

It has been long established that un-alerted see-and-avoid is a poor defence to the risk of a mid-air collision. To counter the deficiencies of un-alerted see-and-avoid, alerted methods of traffic detection must be employed. In Australian airspace, currently the most widely practiced alerted see-and-avoid is visual lookout combined with radio usage. However, research and experience has proven this to be unreliable. Collisions, separation breakdowns and near-miss events have still occurred. ADS-B offers the opportunity to radically enhance alerted see-and-avoid in Australian airspace by providing a reliable, spatially defined traffic awareness capability.

The utility of ADS-B can only be fully realised where all potential threats are utilising the system. In order for industry to maximise the benefits of the available technology, and therefore enhance the safety of Australian airspace, it is imperative that all VFR aircraft are equipped with ADS-B technology.

Given the significant cost involved in purchasing and fitting ADS-B equipment, the RAAA does not support mandating the fitment of certified equipment to VFR only, PVT aircraft. Non-certified ADS-B equipment fitted, without the high-accuracy capability, is more than accurate enough to be a useful aid for alerted see-and-avoid provided by ADS-B. This would allow very low cost units to be purchased by aircraft operators and simultaneously provide the highest likelihood of ADS-B fitment compliance.

In further support of mandatory fitment of ADS-B technology to VFR aircraft, the RAAA supports the proposal outlined at 2.1.1 of DP 1701AS.

Access to ADS-B Traffic Information

ADS-B fitment though, is only half of the equation. For the true benefit of ADS-B technology to be realised, as many aircraft as possible must be ADS-B In capable. However, ADS-B In equipment is vastly more costly to acquire and intrusive to fit in many instances, even where it is uncertified. Therefore, alternative solutions must be explored which further enhance ADS-B utility, which is where EFB technology fits. The RAAA strongly encourages CASA to engage with Airservices Australia to immediately permit the use of the FIB ADS-B data in EFB applications across their inbuilt cellular traffic networks.

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As of February 2018, an estimated 24,000 Australian pilots use a cellular internet capable tablet computer to run EFB software. Of this number, 18,000 are OzRunways customers, with the remainder belonging to one of the other two CASR 175 Data Service Providers; Jeppesen and Avsoft.

OzRunways EFB applications features a popular proprietary traffic system, which broadcasts a users' position to other users, via cellular internet. The position and altitude information of the closest 18 OzRunways traffic contacts to the user are then shown on the users map display, in near real time, via the internet.[1] Off-the-shelf ADS-B in units may be purchased which further allow ADS-B traffic to also be overlayed on the users map screen via a Bluetooth or Wi-Fi receiver paired to the device, however many users do not opt for these additional devices due to the additional cost and complication associated with their usage.

The average active daily user number on the OzRunways traffic network is >3500. A large number of the 18,000 OzRunways EFB subscribers are recreational and VFR General Aviation pilots, flying aircraft which do not typically have any form of ADS-B In capability; either aircraft mounted or iPad connected. These aircraft owners are typically price sensitive and have rudimentary equipment fitted to their aircraft; a vast number rely on their EFB for assistance with navigational functions such as traffic awareness.

In 2017, OzRunways undertook a trial using the Airservices FIB to re-transmit ADS-B traffic over the OzRunways cellular traffic network. This trial was successful, and demonstrated that FIB sourced ADS-B traffic could be readily injected in to the OzRunways traffic system, with very low latency and high accuracy.[2] This demonstration further proved that the utility of the OzRunways cellular traffic network would be further enhanced by allowing customer access to FIB sourced ADS-B traffic. Such access would effectively provide ADS-B In to users who do not have the more expensive equipment fitted to their aircraft, and thus provide a greatly enhanced alerted see-and-avoid capability. Given the very reliable cellular coverage throughout Australia, this capability is of relatively high reliability. As the system is already developed and tested, it is ultra cost effective and can be made available to the majority of Australian pilots immediately through OzRunways upon approval being received. This system will provide an immediate and very positive safety enhancement to a vast number of aircraft throughout Australia. Simultaneously the availability of an ADS-B in source will provide additional incentive for the adoption of low cost ADS-B equipment amongst cost sensitive markets such as recreation and VFR GA sectors.

[1] Latency is <5 seconds, no more than 12 seconds.

[2] Airborne trials showed <0.5nm position error for FIB sourced ADS-B traffic on the OzRunways cellular traffic network.