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April 18, 2018

Ms. Rita McNair
Manager, En Route and Terminal Contracts Division
Federal Aviation Administration
800 Independence Ave SW
Washington, DC 20591

Re: Geographic Location Tracking Using ADS-B and Mode S Transponders Market Survey

Dear Ms. McNair,

The Aircraft Owners and Pilots Association (AOPA) respectfully submit the following comments in response to the FAA's market survey on privacy concerns of General Aviation operators when utilizing Automatic Dependent Surveillance–Broadcast (ADS-B) and Mode S transponders. ADS-B is a satellite-based surveillance technology that is an integral component of the next-generation air traffic control system that promises an increase in efficiency, capacity, and safety. Privacy, on the other hand, stands to suffer unless a means is developed to withhold aircraft identifiable information that owners do not want to be visible to anyone with a non-FAA receiver who otherwise can capture that information.

Representing two-thirds of all U.S. pilots, AOPA has been actively engaged in the collaborative conversations with the FAA, the National Business Aviation Association (NBAA), and our other industry partners to find a solution that would enable anonymity for those civil operators using Mode S or ADS-B systems. Both technologies broadcast an aircraft's unique International Civil Aviation Organization (ICAO) code and Flight ID, which can be captured by anyone with a suitable receiver. This information can then be used to determine who owns and operates the aircraft, and even track their movements globally. The proliferation of privately-owned receivers tied to large networks and flight tracking websites has dramatically changed the aviation privacy landscape.

Pilots who fly solely in the U.S. and outside of Class A airspace do have an option of equipping with ADS-B using the 978 MHz Universal Access Transceiver (UAT), which will not emit the ICAO code or Flight ID when used in the anonymous mode. However, AOPA's data indicates about 85% of General Aviation pilots are equipping with 1090 MHz ADS-B systems, as this is the international standard and allows access to more airspace. Additionally, anonymity over UAT is only valid when squawking 1200 and when not using air traffic services. The clear preference for 1090 MHz systems highlights the importance of finding a solution for these operators.

The concept of "rolling ICAO codes" is a promising approach to increasing anonymity for General Aviation operators and we appreciate the FAA taking this important step of soliciting broader industry feedback. Rolling ICAO codes refers to the idea of the aircraft emitting randomly assigned ICAO codes that will be changed periodically. In combination with an anonymous callsign, the aircraft would be harder to track. This is a feasible solution and we look forward to other suggested approaches from vendors as to how to improve real-time privacy of aircraft using ADS-B and Mode-S transponders.

We believe the FAA must consider several key points in determining a successful privacy strategy: (1) it is important the FAA collaborate with Nav Canada to determine a privacy solution that would be compatible with Canadian airspace; (2) the solution must not be onerous for owner-operators to the point that it limits participation; (3) privacy should be available whether or not the pilot is utilizing air traffic services; and (4) the FAA should continue working with industry to find a long-term solution to encrypting Mode S and ADS-B messages to ensure privacy is being provided automatically at the source.

U.S. General Aviation has significant presence in Canada

In a January 11, 2018, letter to Nav Canada regarding their draft ADS-B mandate, AOPA noted that privacy is a fundamental issue for many aircraft operators. The Canadian ADS-B mandate will require a 1090 MHz solution, which effectively denies the use of UAT, and privacy, for U.S. operators when operating across the northern border.

Among General Aviation destinations, Canada was the most visited country in 2017 per an AOPA survey. Americans account by far for the largest number of visitors to Canada according to the Tourism Industry Association of Canada. Based on the FAA's latest cross-border data, AOPA conservatively estimates that there are approximately 25,000 U.S. General Aviation flights to Canada each year.

Considering the upcoming Canadian 1090 MHz ADS-B mandate, the FAA should work with Nav Canada to ensure there is a seamless cross-border program for those operators who wish to have real-time privacy while using ADS-B. It is important the privacy program is compatible with either country's airspace and air traffic automation. Given the large volume of General Aviation traffic overflying and crossing our northern border, having a mutually compatible process is important to a successful privacy program.

Solution should be practical for operators

It has been documented that the hardware for many ADS-B and Mode S systems require a maintenance technician to hook-up a special cable and computer to change the programmed ICAO code. It was not envisioned that an operator would need to routinely change their ICAO code, but the rolling ICAO code concept would require just that. This solution may be practical for many operators but the FAA should consider whether alternative procedures would be possible for those who have hardware complications that make changing ICAO codes onerous. As the FAA receives feedback, we encourage them to engage and educate manufacturers and consumers, so both can be fully informed of the capabilities and limitations of the privacy procedures.

Long-term encryption discussion must continue

The long-term encryption of the 1090 MHz ADS-B and Mode S data must be initiated at the source—the aircraft—as the many privately-operated ground receiver networks do not rely on an FAA data stream to feed their tracking websites. Encryption at the source will allow an automated solution that will reduce the workload for operators and the agency, and this solution could become a global standard. The cost associated with investment in software and hardware upgrades will need to be part of the conversation to determine the practicality and benefit of pursuing an option like changing the Minimum Operational Performance Standards (MOPS). Although encryption may facilitate privacy from non-government receivers, we understand it is not a near-term solution and it will require further conversation.

Conclusion

We appreciate the FAA taking this important step towards addressing the long-standing privacy concerns of civil operators regarding the transmitting of the unencrypted ICAO code and Flight ID over Mode S and ADS-B transponders. As these systems must be operated in transmit mode at all times, we believe many General Aviation operators who desire privacy for security or business reasons are discouraged from equipping with ADS-B Out. This market survey should help define practical solutions and further inform the discussion on the concept of rolling ICAO codes.

The information transfer function of ADS-B and Mode S lets the data bypass an existing privacy-protection program available to General Aviation and charter operators—the Block Aircraft Registration Request (BARR) program—rendering it obsolete for aircraft with a Mode S or ADS-B transponder. We believe it is important that any solution must enable privacy to originate at the aircraft given the prevalence of privately operated receivers.

Thank you for reviewing our comment on this important issue. Please feel free to contact me at 202-509-9515 if you have any questions.

Sincerely,

Melissa Rudinger
Vice President, Government Affairs

The Aircraft Owners and Pilots Association (AOPA) is a not-for-profit individual membership organization of General Aviation Pilots and Aircraft Owners. AOPA's mission is to effectively serve the interests of its members and establish, maintain and articulate positions of leadership to promote the economy, safety, utility, and popularity of flight in General Aviation aircraft. Representing two-thirds of all pilots in the United States, AOPA is the largest civil aviation organization in the world.