TO: U.S. Department of Transportation
Docket Management Facility
1200 New Jersey Avenue, SE
West Building Ground Floor, Room W12-140
Washington, DC 20590

PETITION FOR EXEMPTION FROM 14 CFR § 91.227(d)(8) and (11) TO ALLOW GENERAL AVIATION PILOTS TO OPERATE IN ADS-B ANONYMOUS MODE WHILE ON A VFR FLIGHT PLAN

PETITIONER: AIRCRAFT OWNERS AND PILOTS ASSOCIATION
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PETITION FOR EXEMPTION

The Aircraft Owners and Pilots Association (AOPA), the world's largest aviation membership association, is seeking a limited exemption from a portion of 14 CFR § 91.227(d)(8) and (11) to allow operators of aircraft equipped with 978 MHz Universal Access Transceiver (UAT) ADS-B systems (TSO-C154c compliant) to operate utilizing anonymous mode when: (1) the pilot has filed a VFR flight plan; (2) the pilot has not requested ATC services; and (3) the operation is outside of "rule airspace" as provided in 14 CFR §91.225. In support of this request, AOPA submits the following information.

Aircraft operators equipped today with a Mode C transponder desire the ability to retain an equivalent level of privacy when operating in the National Airspace System (NAS) once equipped with ADS-B. This privacy is facilitated when the operator installs an anonymous mode capable ADS-B system, selects the anonymous mode function, does not utilize air traffic services, and has not filed a VFR or IFR flight plan. AOPA submits that allowing a general aviation pilot to utilize anonymous mode while on a VFR flight plan as provided in this Petition for Exemption would be a positive benefit for the public and would provide an equivalent level of safety as the existing requirement.

On behalf of general aviation pilots, AOPA seeks relief from the following regulatory requirements:

> **§91.227, Automatic Dependent Surveillance-Broadcast (ADS-B) Out equipment performance requirements.**
>
> (d) *Minimum Broadcast Message Element Set for ADS-B Out*. Each aircraft must broadcast the following information, as defined in TSO-C166b or TSO-C154c. The pilot must enter information for message elements listed in paragraphs (d)(7) through (d)(10) of this section during the appropriate phase of flight.
>
> (8) An indication of the aircraft's call sign that is submitted on the flight plan, or the aircraft's registration number, ***except when the pilot has not filed a flight plan***, has not requested ATC services, and is using a TSO-C154c self-assigned temporary 24-bit address. …
>
> (11) An indication of the aircraft assigned ICAO 24-bit address***, except when the pilot has not filed a flight plan***, has not requested ATC services, and is using a TSO-C154c self-assigned temporary 24-bit address. …

Currently, § 91.227 contains specific provisions allowing operators with TSO-C154c equipment to transmit a self-assigned (randomized) temporary 24-bit address and no call sign. However, the UAT anonymous 24-bit address feature may only be used when the operator "has not filed a flight plan" and "has not requested ATC services." The UAT call sign may also be omitted but only when the anonymous 24-bit address is chosen.

Federal Register, Vol 75, No. 103 dated May 28, 2010, Section II, Discussion of the Final Rule, Subsection U, Privacy, states in part, "TSO-C154c includes a feature to temporarily and randomly assign a 24-bit address for UAT-equipped aircraft. This rule does not prohibit the use of this feature. UAT-equipped aircraft conducting VFR operations that have not filed a flight plan and are not requesting ATC services may use this feature." This paragraph does not reference IFR aircraft or IFR flight plans. Since the subject aircraft is "conducting VFR operations," the reference can only be referring to a VFR flight plan. So an aircraft that has filed a VFR flight plan cannot operate in anonymous mode.

In seeking this relief, general aviation pilots operating in accordance with this request for exemption would be able to utilize anonymous mode using TSO-C154c equipment while having filed a VFR flight plan but are not requesting ATC services. This request is made in the interest of maintaining current levels of operator privacy while allowing for ADS-B equipage in compliance with § 91.225 and for equivalent access to search and rescue services provided for by the filing of a VFR flight plan.

AOPA understands privacy has become a leading concern for many general aviation pilots deciding whether to equip with ADS-B and, should they decide to equip, which system to install. New technologies operated by third parties allow the tracking of ADS-B Out equipped aircraft, including those on a VFR 1200 transponder code, using ground stations. Aircraft tracking websites then display this unique information to the public in real-time. The privately-operated aircraft tracking networks bypass the FAA's Block Aircraft Registration Request (BARR) program, Aircraft Situation Display to Industry (ASDI) data, and assess significant fees on operators wishing to have their aircraft removed from display to the public. It is clear that privacy or anonymity must now originate at the aircraft and not from an FAA system downstream. The UAT ADS-B system with anonymous mode is the only approved method of achieving ADS-B regulatory compliance and an equivalent level of privacy as is available for solely Mode C transponder equipped aircraft.

We have heard from these same aircraft owners who desire privacy that they also wish to continue to be afforded equivalent search and rescue services provided for by the filing of a VFR flight plan. In rural areas like Alaska or Montana, a VFR flight plan can be lifesaving and a means of ensuring the proper authorities know where that aircraft is. Concerns have been raised by many rural operators regarding vandalism, theft, and other legitimate fears should the public be able to track their aircraft's movements, while at the same time, the concern that anonymity is at the sacrifice of life saving services like search and rescue facilitated by a VFR flight plan. Pilots feel they are in a catch-22 situation and that neither option is desirable, nor should a choice between search and rescue services and privacy be necessary.

As is discussed in greater detail later in this Petition for Exemption, AOPA believes there are several positive and compelling arguments for approving this limited request.

I. The FAA's air traffic automation does not correlate VFR flight plans with ADS-B data. Neither the FAA nor the pilot is benefiting from the restriction regarding use of anonymous mode when the pilot is on a VFR flight plan. Additionally, search and rescue services are not enhanced by the operator using a non-anonymous mode as ADS-B track data is available regardless of the pilot being in anonymous or non-anonymous modes. We are not aware of any FAA effort to provide enhanced search and rescue services based on ADS-B that would be affected by granting this exemption. Therefore, AOPA believes granting this Petition for Exemption does not adversely affect the safety benefits available to the FAA or a pilot operating under its provisions.

II. VFR flight plans are primarily filed for search and rescue purposes and enforcing a restriction on eligibility for their use will reduce the utilization and appeal of this life saving tool. We believe the current requirements in § 91.227(d)(8) and (11) undermines safety by forcing a pilot to choose between privacy and a VFR flight plan. We believe this will result in a decrease in filing of VFR flight plans, thus making it harder to find aircraft that may be overdue.

III. AOPA understands privacy is a leading concern of general aviation pilots needing to equip with ADS-B. The UAT anonymous mode was implemented to allow pilots to comply with § 91.225 and to have privacy, but the prohibition of using anonymous mode when on a VFR flight plan undermines the practicality of anonymous mode. The result is a pilot must choose either privacy or the enhanced safety benefits of a VFR flight plan, and, for those pilots who buy anonymous mode systems, it is foreseeable that they will forego filing a VFR flight plan.

IV. The limitation regarding filing a VFR flight is not well understood by the public. This requirement was not adequately discussed in the notice of proposed rulemaking for ADS-B so the public did not adequately have an opportunity to understand this change and its impact. We view this requirement as significant. In many cases, the vendors selling UAT systems do not understand this limitation and do not adequately advise their customers of this limitation.

V. Enforcing this limitation on anonymous mode undermines the ADS-B equipage case for aircraft in rural areas where rule airspace is sparse or nonexistent. We believe it is important the FAA incentivize general aviation equipage and remove unnecessary barriers to pilots evaluating the benefits of this NextGen technology.

AOPA contends allowing pilots flying with UAT systems in anonymous mode while on a VFR flight plan, as provided for in this request, is in the public's interest and would provide an equivalent level of safety to the existing requirement. In granting this petition, pilots would still be prevented from utilizing anonymous mode when requesting air traffic services. We appreciate the FAA considering our request.

INTEREST OF THE PETITIONERS

This Petition for Exemption is being made on behalf of the members of the Aircraft Owners and Pilots Association (AOPA) and the general aviation flying public. The 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. AOPA represents over 315,000 members who collectively own and/or pilot 85% of all general aviation aircraft in the United States. Representing the majority of pilots in the United States, AOPA is the largest civil aviation organization in the world.

General aviation is an integral and vital part of the global transportation system, providing services and fulfilling needs that are essential to the nation's economy and a community's needs. The impact of general aviation is direct and indirect, and it serves to affect the nation and the local communities economically and socially. In particular, general aviation contributes more than $219 billion to the United States economy annually and employs more than 1.1 million people.

SUPPORT FOR THE PETITION

This Petition for Exemption provides for an equivalent level of safety

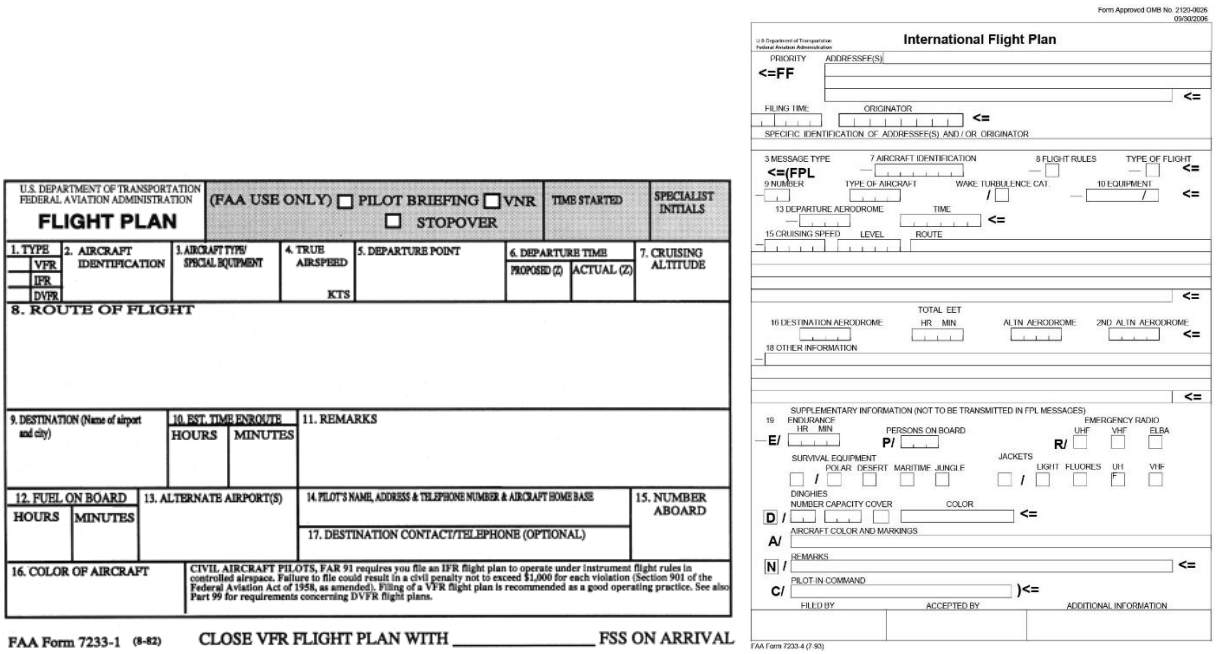
Granting this petition would provide at least an equivalent level of safety and, in practice, stands to provide a greater level of safety. If approved, pilots could fly using anonymous mode while on a VFR flight plan but not having requested ATC services. Put simply, the aircraft's ADS-B Flight ID would cease being provided and the 24-bit address would become randomized, removing the transmission of uniquely identifiable information. Allowing the pilot to simultaneously be on a VFR flight plan increases the safety of that operation by allowing that pilot to receive a more efficient and effective search and rescue response should they become overdue. Pilots operating in anonymous mode and on a VFR flight plan would be reducing their risk overall and enabling a greater level of safety.

This is an example of an ADS-B UAT system with anonymous mode enabled. Whenever the squawk code is set to 1200, the system automatically randomizes the 24-bit address and call sign.

Other aircraft operating in the NAS are not adversely affected by this change. Other ADS-B equipped aircraft will continue to receive an advisory concerning the location of the "anonymous" aircraft. Only the identification of the aircraft will be omitted. In addition, the FAA's air traffic automation systems do not correlate VFR flight plans with ADS-B data. As these are independent systems that do not communicate with each other, there would be no reduction or change in air traffic controller, Flight Service specialist, or Rescue Coordination Center specialist workflow. Neither the FAA nor the pilot is benefiting from the restriction regarding use of anonymous mode when the pilot is on a VFR flight plan. We contend this change would be benign to the FAA and to other aircraft operating in the NAS.

ADS-B equipage allows for better tracking of aircraft in areas outside of conventional radar coverage and to a much higher precision thanks to the highly accurate GPS position source. AOPA is encouraging ADS-B equipage among general aviation as it can improve the ability for search and rescue to find aircraft that become overdue. Whether or not the aircraft is operating in anonymous mode, the ADS-B track data for that aircraft is displayed to air traffic control and to search and rescue personnel, like the Civil Air Patrol. The Civil Air Patrol regularly uses ADS-B tracks from anonymous and non-anonymous systems to find overdue aircraft.

For search and rescue personnel, finding an aircraft that was operating in anonymous mode could potentially be more challenging as the aircraft's uniquely identifiable information (24-bit address and call sign) will not have been broadcast; however, ADS-B track information combined with the extensive information provided in the VFR flight plan allows for an equivalent level of safety and ability for FAA, and others, to find an individual aircraft expeditiously. Rescue professionals today can locate aircraft based on radar tracks from the Mode C transponder, which are essentially anonymous. Search and rescue services are not enhanced by the operator using a non-anonymous mode as track data is available in either anonymous or non-anonymous modes. The combination of a VFR flight plan and highly accurate ADS-B track information will increase the likelihood of an aircraft being located quickly.



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FLIGHT PLAN

(FAA USE ONLY) ☐ PILOT BRIEFING ☐ VNR ☐ STOPOVER | TIME STARTED | SPECIALIST INITIALS

1. TYPE	2. AIRCRAFT IDENTIFICATION	3. AIRCRAFT TYPE/ SPECIAL EQUIPMENT	4. TRUE AIRSPEED	5. DEPARTURE POINT	6. DEPARTURE TIME PROPOSED (Z)	6. DEPARTURE TIME ACTUAL (Z)	7. CRUISING ALTITUDE
VFR / IFR / DVFR			KTS				

8. ROUTE OF FLIGHT

9. DESTINATION (Name of airport and city)	10. EST. TIME ENROUTE HOURS	10. EST. TIME ENROUTE MINUTES	11. REMARKS

12. FUEL ON BOARD HOURS	12. FUEL ON BOARD MINUTES	13. ALTERNATE AIRPORT(S)	14. PILOT'S NAME, ADDRESS & TELEPHONE NUMBER & AIRCRAFT HOME BASE	15. NUMBER ABOARD
			17. DESTINATION CONTACT/TELEPHONE (OPTIONAL)	

16. COLOR OF AIRCRAFT

CIVIL AIRCRAFT PILOTS, FAR 91 requires you file an IFR flight plan to operate under instrument flight rules in controlled airspace. Failure to file could result in a civil penalty not to exceed $1,000 for each violation (Section 901 of the Federal Aviation Act of 1958, as amended). Filing of a VFR flight plan is recommended as a good operating practice. See also Part 99 for requirements concerning DVFR flight plans.

FAA Form 7233-1 (8-82) CLOSE VFR FLIGHT PLAN WITH _____ FSS ON ARRIVAL

Form Approved OMB No. 2120-0026
03/30/2006

U.S. Department of Transportation
Federal Aviation Administration

International Flight Plan

PRIORITY <=FF
ADDRESSEE(S) <=
FILING TIME
ORIGINATOR <=
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND / OR ORIGINATOR

3 MESSAGE TYPE <=(FPL
7 AIRCRAFT IDENTIFICATION
8 FLIGHT RULES
TYPE OF FLIGHT <=
9 NUMBER
TYPE OF AIRCRAFT
WAKE TURBULENCE CAT /
10 EQUIPMENT / <=
13 DEPARTURE AERODROME
TIME <=
15 CRUISING SPEED
LEVEL
ROUTE <=

TOTAL EET
16 DESTINATION AERODROME
HR MIN
ALTN AERODROME
2ND ALTN AERODROME <=
18 OTHER INFORMATION <=

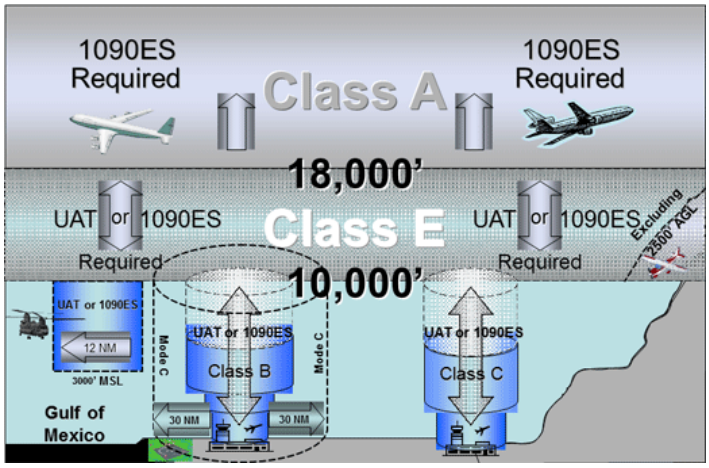
SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)
19
ENDURANCE HR MIN
E/
PERSONS ON BOARD
P/
EMERGENCY RADIO
UHF VHF ELBA
R/
SURVIVAL EQUIPMENT
POLAR DESERT MARITIME JUNGLE /
JACKETS
LIGHT FLUORES UHF VHF
DINGHIES
NUMBER CAPACITY COVER COLOR
D / <=
AIRCRAFT COLOR AND MARKINGS
A/
REMARKS
N / <=
PILOT-IN-COMMAND
C/)<=
FILED BY
ACCEPTED BY
ADDITIONAL INFORMATION

FAA Form 7233-4 (7-93)

Examples of the FAA's domestic and international flight plan forms. Pilots must provide their "aircraft identification," which is normally the aircraft registration or call sign. Additional information provided on this form further increases a pilot's chance of being found by rescuers.

A pilot's inquiry to AOPA on this topic exemplifies this issue and underscores the rationale for why a pilot would want to be anonymous while on a VFR flight plan. This pilot flies in rural Alaska, generally outside of the FAA's ADS-B surveillance coverage which is limited in this state, but is aware that private flight tracking websites are identifying his aircraft in these remote areas. Several flight tracking vendors provide devices to their members to allow them to feed data back to the website. As these devices are inexpensive, coverage can be economically expanded far beyond what the FAA has. If this pilot were to fly in this area not in anonymous mode, he is aware his neighbors and others could then be alerted to the fact he is not at home, raising a security concern for this pilot. If he chooses to be in anonymous mode, he would be exposing himself to an increased risk of not being found quickly by search and rescue if he were to become overdue given he is not allowed to be simultaneously on a VFR flight plan per § 91.227(d)(8) and (11). There would be an increase in safety for this pilot, and others flying in rural and non-rural areas, to allowing simultaneous use of anonymous mode and a VFR flight plan.

AOPA believes the current requirements in § 91.227(d)(8) and (11) has the potential to negatively impact safety and will result in a decrease in utilization of VFR flight plans, thus making it harder to find aircraft that may be overdue. A decrease in VFR flight plans for anonymous mode operators could increase the risk to search and rescue personnel and increase their exposure to hazardous conditions. Our proposal seeks to correct this safety gap and encourage equipage with more precise ADS-B systems and the filing of VFR flight plans. VFR flight plans are primarily filed for search and rescue purposes and enforcing a restriction on eligibility for their use will reduce the utilization and appeal of this life saving tool. We believe our petition would increase utilization of both ADS-B and VFR flight plan services.



Depiction of ADS-B rule airspace as defined in § 91.225.

In granting this exemption, we propose a reasonable operating condition would be to limit applicability to non-rule airspace. Rule airspace is defined in § 91.225. This section states what airspace an operator must have ADS-B installed in order to operate. By limiting this exemption's approval to non-rule airspace, the FAA is providing for an equivalent level of safety given an aircraft operator is not required by any regulation to have ADS-B installed in order to operate in this airspace. The pilot is not obligated to equip with ADS-B in this case. Operating in anonymous mode should be acceptable in any airspace where ADS-B is not required as equipping with ADS-B is a choice in this case. In fact, granting this exemption will incentivize ADS-B equipage in non-rule airspace as it would remove an unnecessary prohibition against filing a VFR flight plan.

Public benefit

The public has a strong and substantial interest in maintaining, developing, and improving the aviation industry and in supporting the FAA's statutory duties of, among other things, maintaining and enhancing safety, regulating in a way that best promotes safety, developing and encouraging aeronautics, and preserving the public right of freedom of transit through the navigable airspace. This Petition for Exemption is in the public interest because it would establish an allowance for pilots to fly using anonymous mode while on a VFR flight plan without being subject to an unwarranted and unbeneficial restriction.

The general aviation industry depends on the participation of pilots, mechanics, flight instructors, aircraft builders, and other individuals who support flight activities. Of no small importance to the health of general aviation are those pilots who fly strictly for recreational or hobby purposes. These pilots contribute to the financial stability of a system of airports, manufacturers, and companies that deliver necessary economic resources to communities nationwide. It is in the public interest to keeping these pilots safely flying to support the strength and longevity of general aviation, a segment of the aviation industry that meets the needs of communities and contributes to the quality and efficiency of commercial aviation.

The public interest supports this Petition for Exemption. Many pilots wish to equip with ADS-B for regulatory and non-regulatory reasons in an economic fashion. UAT systems were approved by the FAA as they offered a means for potentially cheaper ADS-B solutions. Reducing the appeal of these systems or limiting the consumer's ability to maximize their purchase could negatively affect equipage and negatively impact general aviation's view of the ADS-B rule.

It is in the public's benefit for more aircraft to equip with ADS-B, particularly in rural areas, from a safety and mid-air collision avoidance perspective. The FAA, AOPA, and other stakeholders have been collaboratively working to encourage ADS-B equipage and promote the benefits. AOPA has heard from pilots that the limitations and regulatory constraints on UAT anonymous mode systems make them reconsider whether they should equip at all. In many cases, particularly in the northern states, equipage with ADS-B is voluntary as rule airspace is limited. We believe this exemption would incentivize and encourage additional aircraft owners to equip with ADS-B, which improves the safety and provides positive benefits for all who fly.

Pilots who would otherwise equip with ADS-B may choose not to if their privacy concerns outweigh the advantages of equipage. Anonymity has become a prominent concern for many citizens, whether it is their digital footprint, privacy rights related to video and image recordings, or the public's ability to access personally identifiable information. AOPA shares these concerns given the ability for the public to track aircraft in real-time and independent of the FAA's systems. It is in the public's interest for the FAA to facilitate anonymity when legally allowable and not detrimental to safety. The allowance of anonymous mode while on a VFR flight plan complies with these criteria and is a desirable solution for general aviation.

Pilots based at rural locations and operating outside of rule airspace share a desire to retain their anonymity while still operating under the protective umbrella of a VFR flight plan. The VFR flight plan serves an important purpose for search and rescue. This tool is most popular in rural areas where air traffic control VFR flight following may not be practical due to limited surveillance or communications coverage. Should an aircraft become overdue, a VFR flight plan can facilitate a faster, more efficient search. Encouraging VFR flight plan use will, in the long-term, save the government and tax payer's money that would otherwise be spent on lengthy searches. Additionally, the ADS-B equipage that would be promoted by granting this exemption would further increase the efficiency of finding an overdue aircraft.

Estimated impact

The Association understands this exemption will apply to a subset of general aviation pilots. Based on the equipage data from the FAA's 2016-2017ADS-B rebate, approximately 15% of single-engine aircraft owners are installing UAT ADS-B systems. Based on Embry-Riddle Aeronautical University and AOPA survey data, and FAA equipage trend data, AOPA's equipage predictions estimate 80,000 Part 23 general aviation aircraft will be equipped with ADS-B by 2020. This indicates about 12,000 aircraft, or 15% of 80,000 will equip with a UAT system.

Of those aircraft that install UAT systems, based on our discussions with manufacturers and analysis of systems available, a minority will be capable of anonymous mode. We estimate the number of anonymous mode eligible aircraft will be approximately half, or 6,000 aircraft, of the total number with UAT systems.

The utilization and filing of VFR flight plans by general aviation has been on a declining trend the past few years. We believe it is in the agency's and public's interest to increase the utilization of this free safety resource. This exemption would promote VFR flight plan filing, which is an under-utilized safety resource. Given the current VFR flight plan filing trend, we estimate a fraction of the 6,000 aircraft owners will file a VFR flight plan and take advantage of an exemption. AOPA's estimate is between 2,000 and 4,500 aircraft may be eligible and take advantage of an approved exemption to § 91.227(d)(8) and (11).

CONCLUSION

For the reasons stated above, AOPA submits that it is in the public interest for FAA to grant a limited exemption from 14 CFR § 91.227(d)(8) and (11) to allow operators of aircraft equipped with 978 MHz Universal Access Transceiver (UAT) ADS-B systems (TSO-C154c compliant) to operate utilizing anonymous mode when: (1) the pilot has filed a VFR flight plan; (2) the pilot has not requested ATC services; and (3) the operation is outside of "rule airspace" as provided in 14 CFR §91.225.

AOPA requests that the FAA act favorably and expeditiously on this Petition for Exemption. AOPA stands ready to assist the FAA as it considers the regulatory relief requested herein, and others as may be necessary, and the development and deployment of appropriate training and education materials. Thank you for reviewing our petition on this important issue. Please feel free to contact Rune Duke at 202-509-9515 or rune.duke@aopa.org if you have any questions.

Sincerely,

Rune Duke
Senior Director, Airspace and Air Traffic