

March 2, 2020

Docket Operations, M-30
U.S. Department of Transportation (DOT)
1200 New Jersey Avenue, SE
Rm W12-140, West Building Ground Floor
Washington, DC 20590-0001

RE: Remote Identification of Unmanned Aircraft Systems, FAA -2019-1100

The National Business Aviation Association (NBAA), representing over 12,000 member companies, offers the following inputs to the Federal Aviation Administration's (FAA) Notice of Proposed Rulemaking (NPRM) on Remote Identification (RID) of Unmanned Aircraft Systems (UAS). NBAA members consider RID foundational to moving forward with integrating UAS and other emerging technologies into the National Airspace System (NAS) and the importance of this capability for safety, national security and operational efficiency.

NBAA has a unique interest in this NPRM as many of our members who have operated manned aircraft for decades are now adding UAS to their operational fleets. In addition, we are seeing member companies using UAS exclusively in furtherance of their businesses. Considering the business aviation interest in utilizing this technology and integrating UAS into the NAS, we offer the following inputs:

UAS Operator Requirements

"Limited" operations to flights no further than 400' from the ground control station seems unenforceable and unrealistic. The distance limitation is contrary to current Part 107 limitations for visual line of sight operations (VLOS) and many systems remain well within VLOS at a 400' distance. This requirement also places unrealistic limitations on modelers or recreational remote control (RC) aircraft operators. Internet connectivity is often unreliable in remote areas which is likely to result in negative impacts on business opportunities.

In addition, the requirement will likely eliminate use of all legacy systems currently in use unless costly retrofits are added. Limiting operations to FAA-Recognized identification area (FRIA) seems unrealistic and unmanageable. The FRIA concept appears to be an accommodation for the recreational user and unless additional costly retrofitting occurs, does not address commercial operations of legacy platforms.

The three options presented are an 'all or nothing' approach that are overly prescriptive.

- Standard ID compliance is only as good as the internet coverage available considering the base assumption is cellular internet.
- Limited is VLOS but hard capped at 400ft per the preamble.
- No Remote ID will likely result in getting into a vehicle and driving an unknown distance to an established test site.

Regardless of phase-in time, there is an inherent conflict between this NPRM and the operational desires of industry, law enforcement, and operators.

Potential Resolution

An option that falls in the middle of Limited RID and No RID would be an acceptable option for the "back-yard" UAS pilot. This operating option would only be permitted in sparsely populated areas, certain distances away from airports, on property they own or have explicit prior permission to operate from, and distance limited to 400 feet horizontally and vertically from the Remote Pilot/Ground Control Station.

Privacy Concerns for UAS Operators

The Notice has serious implications for the privacy of various stakeholders. However, the NPRM falls short of providing clear direction on how privacy concerns will be addressed. Instead, the placeholder provided indicates, "The FAA will address privacy concerns regarding the collection and retention of this data as it develops ... technical requirements." Privacy is a key concern of the business aviation community and much greater detail and dialogue is needed to ensure privacy concerns are adequately addressed.

According to the NPRM, the UAS RID message elements would be publicly accessible. We recognize there is a need to allow law enforcement and security agencies to access and cross-reference message elements and registration information. However, allowing the general public this same information is fraught with privacy and personal safety concerns. Public access to this data could encourage members of the public to confront UAS operators directly instead of reporting their concerns to law enforcement to be handled appropriately. Public access could also jeopardize industrial security for UAS operators.

To fully understand the privacy implications of requiring operational data transmissions, we must first understand who will have access to that data, for how long, and the intended purposes or use of the data.

The NRPM proposes UAS Service Suppliers (USS) retain RID message element information for six months from the date the information is received or came into their possession. Most security cameras delete film in 24 hours while Intelligence agencies can hold on to information for years. We are unsure why UAS information retention would be different than the fifteen days required for operational information from air traffic facilities today. While NBAA is not proposing a specific time limitation on data retention, this may be a case where "less is more or sufficient" for retention purposes.

Potential Resolutions

A possible solution to this privacy challenge would be to have a benign identifier available to the public. This is potentially where alignment with other modes of transportation could be mirrored. Today, concerned citizens can report an errant automobile driver by sharing a license plate with law enforcement. In a similar fashion, providing access to the UAS "electronic license plate" would allow citizens to report UAS issues of concern and avoiding confrontations between citizens and UAS operators directly.

Alternatively, if there is an absolute need to provide public access to all data elements, NBAA requests a program like the Limiting Aircraft Data Displayed (LADD) program be implemented for UAS operators. Business aviation has long advocated for privacy and security of manned aircraft and contends that other aviation operations in support of private business have an equivalent program in place.

Manufacturer Equipage Concerns

There is an overarching concern the barrier to entry for manufacturers is going to evolve into very limited innovation as it will simply be a burden that cannot be overcome by smaller businesses. We urge the FAA to ensure the performance standards and regulatory aspects of equipage minimize the barriers and entry level requirements while encouraging innovation.

NBAA is unclear of the purpose for providing ground control station altitude and broadcasting the data to some undefined recipient. To that end, there are questions around what "altitude" is appropriate – whether it is pressure or true and if there be calibration requirements for altitude recording equipment. Further explanation of the altitude reporting requirements is needed. In addition, the cost estimates to the manufacturer and consumer for adding the additional equipage, the charges associated with securing the services of a USS and registration associated with this NPRM are inadequate.

Frequency Issues

Use of ADS-B Out and Transponders (91.215 and 91.225)

Several ADS-B prohibitions in the NPRM seem appropriate and reasonable while others are more onerous. NBAA agrees with the Part 107 restrictions and the statement that ADS-B does not meet the requirements for RID.

The NPRM proposes changes to the Code of Federal Regulations (CFR) Part 91 for UAS operating under this Part. The spectrum saturation studies conducted have all focused on UAS operating in high traffic density under 400 feet above ground level (AGL), which equates very directly to Part 107, and the associated airspace restrictions seem appropriate.

However, there are no known studies which indicate forecasted high traffic densities at higher altitudes where Part 91 operations typically occur. The Part 91 changes, which do have the "unless otherwise approved by Administrator" caveat, effectively set a policy of introducing non-cooperative UAS (per Detect and Avoid (DAA)) by default in mixed-use airspace, both controlled and uncontrolled. This increases the overall mid-air-collision risk.

These UAS operating in airspace above 400 feet AGL will likely be smaller than a General Aviation (GA) aircraft (e.g. Insitu ScanEagle) and therefore will be harder to visually acquire by a pilot. Even if visually acquired and the UAS is of a fixed wing type, it will be difficult to discern distance since the sizes will vary. If these UAS were to be transponder/ADS-B equipped, then TAS/TCAS, or portable ADS-B receivers would indicate their position to nearby manned aircraft. They would also be visible to Air Traffic Control (ATC) in order to provide flight following services to other manned aircraft in the immediate region. Finally, this also places

increased burden on other UAS with non-cooperative DAA sensors onboard, as these systems are generally targeted at the radar cross section or equivalent of a GA aircraft and larger.

Potential Resolutions

Several solutions could and should be considered ranging from minor rewording to a complete removal of the restriction. Minor rewording can be accomplished to provide guidance, rather than equipage by exception. For example, "UAS operating with a transponder or ADS-B out should do so under a flight plan and be in communication with ATC" presents the same message, but in a different manner. Since, the 1090MHz spectrum has the most concerns related to oversaturation, technical solutions could be explored to minimize the frequency congestion. Technical solution options include:

- (1) The requirement to have ADS-B IN on 1090 MHz AND 978MHz on the UAS, which would prevent the use of spectrum through ADS-Rebroadcast.
- (2) Implement power maximums, for example TSO-C199 Traffic Awareness Beacon System specifies 70W for this type of system, which is nearly half the power of typical Level 1 transponders.
- (3) Prohibition of 1090 MHz spectrum OUT but allow 978MHz "squitters" which are periodic transmission that do not respond to interrogation.

Data transmission via unlicensed spectrum is unreliable, open to interception or cyber-attack, and may add to frequency congestion if shared with command and control requirements of the UAS. Further, if continuous broadcast is a requirement for "standard" operations and no internet is available as an alternative, it is highly likely that bad actors will continue to operate and lawful operations will likely be affected by intermittent network outages or unanticipated and uncontrolled flight terminations. This requirement is likely unenforceable. Monitoring and enforcing violations will be next to impossible if the predicted volume of activity materializes. Further, this requirement places unrealistic burden on modelers and recreational operators.

The NPRM attempts to prohibit the use of ADS-B and transponder technology by small UAS. This is shortsighted and potentially eliminates a path to viable DAA technology development. Consideration of work conducted by MITRE and others opens the possibility of utilizing ADS-B and transponders by limiting power output so as not to run the risk of oversaturating the system or exceeding service volume limitations. Further, the use of ADS-B enhances safety by providing an alerting capability to other airspace participants without the need for additional specialized equipage. NBAA suggests further research and testing on the actual impact of ADS-B and transponders at reduced output in dense airspace environments and operation in the Mode C veil airspace to determine the impact.

General

UAS operators and NBAA member companies will be significantly impacted by this NPRM. While the FAA discusses promises of night operations, flight over people, and beyond-visual-line-of-sight, none are part of the proposal. As written, the NPRM does not deliver the benefits the industry recommended previously.

As the FAA wants to require a new standardized serial number system, existing UAS on the market or sold to date would not be Remote ID compliant.

National security is used as a large justification for RID. Intelligent bad actors may not buy a prosumer UAS “off the shelf” to conduct bad acts. More than likely they will be using a custom built UAS that doesn’t have RID built in. In that case, RID does not fully address safety or security.

Counter UAS systems are the effective means of stopping bad actors and efforts need to continue to develop and deploy those systems. Questions remain around the ability of police and fire departments at the state and local level having the tools to monitor traffic and take appropriate action if rules are violated. Coupled with the ability to monitor is the need to appropriately train and fund the capability.

USS costs and viability are still in debate. The NPRM equates current LAANC services as the logical extension for providing identification and tracking information to the FAA and others. Requirements to become a USS need to be provided as do the ground rules for data sharing. In addition, there are still many unknowns as to how the USS will compile and share data including protection of sensitive information. A USS cost structure needs to be discussed, understood and agreed upon by the user community prior to requiring all data be filtered through the USS. A key part of the USS cost considerations must consider the continued viability and scalability of UAS business.

The FAA has recently announced its intention to produce “...a request for information on how manned aviation could take advantage of remote identification signals.”¹ In this vein, NBAA believes manned aircraft pilots should be mentioned as RID stakeholders.

NBAA supports charting FRIAs to ensure and promote greater situational awareness of these areas. As we move away from paper charts to electronic flight bags, filtering of information by pilots is an easy solution to the argument around “chart clutter”.

The FAA should consider a program akin to the *General Aviation ADS-B Rebate Program* if Network ID remains part of the final rule.

In summary, the current NPRM’s proposal to require both local and Internet broadcast for the vast majority of UAS operations in the US is a challenge. Internet based RID is only necessary on those operations such as BVLOS. By removing the requirement for internet based RID, a very large majority of existing UAS would already be Broadcast ID compliant. By dropping the specialized serial number requirement and adjusting some of the information that is being broadcast, existing drones on the market could likely be made RID compliant with a simple firmware update.

¹ Quoted from Jay Merkle at the recent Royal Aeronautical Society event

The RID Aviation Rulemaking Committee (ARC) also suggested tiers of RID, where standard UAS operations like real estate photography would only need to do either local broadcast of information from the drone or internet but not both. More complex operations that deviate from the standard UAS laws would require both methods of information broadcast. NBAA strongly recommends the FAA adopt the recommendations of the RID ARC as a basis for the final rule. It is disconcerting the FAA ignored most of the RID ARC recommendations without any rationale or justification. The FAA should either incorporate the RID ARC recommendations as presented in the final report or provide a detailed rationale as to why industry inputs were ignored.

In light of the impacts and many responses to the NPRM, NBAA recommends the FAA analyze this round of comments and issue a revised or second NPRM with opportunity for comment before going to a final rule..

NBAA appreciates the opportunity to provide inputs to the NPRM and looks forward to working with the FAA on potential solutions to mitigate the concerns shared.

Sincerely,

A handwritten signature in cursive script, appearing to read "Heidi Williams", with a long horizontal flourish extending to the right.

Heidi Williams
Director, Air Traffic Services & Infrastructure