Date: February 11, 2025

To: Docket Operations, M-30
U.S. Department of Transportation
1200 New Jersey Avenue SE
Room W12-140, West Building Ground Floor
Washington, DC 20590-0001

Subject: Comments on the Notice of Proposed Rulemaking for Normalizing Unmanned Aircraft Systems (UAS) Beyond Visual Line of Sight (BVLOS) Operations; Reopening of Comment Period for Specific Electronic Conspicuity (EC) and Right-of-Way Topics
Docket Number: FAA-2025-1908

To Whom it May Concern,

The National Agricultural Aviation Association (NAAA) appreciates the opportunity to comment on the above referenced subject.

U.S. Aerial Application Industry Background

NAAA represents the interests of the 1,560 manned operators, 2,028 non-operator pilots, and 1,082 unmanned operators conducting 14 CFR Part 137 aerial application operations throughout the United States, using aircraft to enhance the production of food, fiber and bioenergy; protect forestry; protect waterways and ranchland from invasive species; and provide services to numerous urban agencies and homeowner groups for the control of mosquitoes and other health-threatening pests.

Within agriculture and other pest control situations, manned aerial application is an important method for applying pesticides, for it permits large areas to be covered rapidly—by far the fastest application method of crop inputs—when it matters most. It takes advantage, more than any other form of application, of the often too-brief periods of acceptable weather for spraying and allows timely treatment of pests while they are in critical developmental stages, often over terrain that is too wet or otherwise inaccessible for terrestrial applications. Aerial application treats above the crop canopy, thereby not disrupting the crop and damaging it. Aerial application has greater

productivity, accuracy, speed, and lack of damage to the crop compared to ground application.[1] Although the average manned aerial application company is comprised of but six employees and two aircraft, as an industry these small businesses treat nearly 127 million acres of U.S. cropland each season, which is about 28% of all cropland used for crop production in the U.S.[2] In addition to the cropland acres, aerial applicators annually apply to 5.1 million acres of forest land, 7.9 million acres of pasture and rangeland, and 4.8 million acres for mosquito control and other public health concerns. This efficiency is due to the high speeds in which the aircraft travel (up to 150 mph for a fixed-wing manned agricultural aircraft) and the large payload capacity (the Air Tractor AT-802 holds 800 gallons of payload and there are more AT-802 aircraft in the industry today compared to other agricultural aircraft models).

Data from a Texas A&M University economics study[3] and the 2019 NAAA industry survey[2] were used to calculate that the value of the aerial application industry to farmers, input suppliers, processors, and agricultural transportation and storage industries for corn, wheat, cotton, soybean, and rice production in the U.S. is estimated to be about $37 billion.[4]

The aerial application of crop protection products results in greater harvest yields of crops. This in turn results in less land being used for agricultural production, preserving more wetlands for natural water filtration, forest ecosystems for carbon sequestration and habitat for threatened and endangered species. The Texas A&M study revealed that the total area of cropland needed to replace the yield lost if aerial application was not available for corn, wheat, soybean, cotton, and rice production is 27.4 million acres, an area roughly the size of Tennessee. Aerial applicators seed 3.8 million acres of cover crops annually.[4] This means that aerial applicators are responsible for helping to sequester 1.9 million metric tons of CO_2 equivalent annually, which according to the EPA would be the equivalent of removing approximately 412,000 cars with carbon-combustion engines from the roads each year.

Comments on the Summary of the Proposal

In section *I. Summary of the Proposal*, FAA states:

> *FAA proposed changes to legacy right-of-way rules through provisions proposed in Title 14 of the Code of Federal Regulations (CFR) § 108.195(a)(2) and proposed aligning amendments to the legacy right-of-way rules codified at § 91.113. The proposed right-of-*

[1] Kováčik, L., and A. Novák, 2020. "Comparison of Aerial Application vs. Ground Application." *Transportation Research Procedia* 44 (2020) 264–270.
[2] National Agricultural Aviation Association. May 2019. "2019 NAAA Aerial Application Industry Survey: Operators." https://www.agaviation.org/2019-naaa-operator-survey/
[3] Dharmasena, S. 2020. "How Much is the Aerial Application Industry Worth in the United States?" Research presented at the 2020 Ag Aviation Expo, Savannah, GA. https://www.agaviation.org/education/resources/aerial-application-technology-research-sessions/
[4] Dharmasena, S. 2021. "Value of the Agricultural Aerial Application Industry in the United States" Research presented at the 2021 Ag Aviation Expo, Savannah, GA. https://www.agaviation.org/education/resources/aerial-application-technology-research-sessions/

> *way changes would give part 108 UAS operators presumptive right-of-way over manned aircraft except: (a) when the manned aircraft is broadcasting location data through Automatic Dependent Surveillance-Broadcast (ADS-B) Out or an approved alternate electronic conspicuity (EC) device alternate to ADS-B Out (hereinafter "alternate EC"); (b) in Class B or C airspace; (c) when the manned aircraft is taking off or landing at an airport or heliport; or (d) over Category 5 population areas.*

NAAA must point out that this is not wholly accurate. §108.195 would absolve a Part 108 aircraft from yielding right-of-way in §108.205-defined shielded areas, however, under the proposed §91.113(h), a manned aircraft would still have right-of-way in these areas if they are broadcasting their location using ADS-B or electronic conspicuity (EC). In effect, neither aircraft is expected to yield right-of-way.

The hazard this would pose combined with respective exposure to manned aerial application operations demonstrated extensively in NAAA's comments on the original NPRM will bear out a major safety risk to pilots in the aerial application industry.[5] As such, and based on discussions at the January 6, 2026 meeting NAAA participated in with FAA Administrator Bedford, other FAA leaders, general aviation leaders, and UAS leaders, it appeared UAS leaders indicated support of ADS-B/EC equipment on UAS universally, with no exceptions for shielded areas or otherwise. NAAA supports that position with the addition that manned aircraft operating equipped with ADS-B/EC technology unconditionally have the right-of-way when operating in low-altitude environments including shielded areas—areas commonly utilized by manned and unmanned agricultural aircraft.

Comments on Specific Questions in the Notice

1. Are there alternate EC devices capable of complying with proposed § 108.195(a)(2)(ii) that are available today? What are the names and manufacturers of those devices? Where are the devices currently approved for use and for what purpose(s)? Do any of them have the capability to inform the user that the device is not working properly?

NAAA will refine its comments herein to EC devices which would comply with proposed §108.195(a)(2)(ii) **and be portable (not permanently or semi-permanently installed), and anonymous**.

While NAAA is not aware of any fully compliant device available for purchase today, uAvionix has prototyped a 978 MHz variant of the commercially available skyEcho[6] (1090 MHz) EC device. The skyEcho (1090 MHz) is an internationally deployed low-power, portable and purpose-built EC

[5] NAAA. October 3, 2025. Comments on FAA-2025-1908. https://www.regulations.gov/comment/FAA-2025-1908-1842
[6] https://uavionix.com/general-aviation/skyecho/

device. As referenced in NAAA's comments on the original NPRM[5], the 978 MHz prototype was developed through participation in FAA-sponsored testing, which included the aircraft test case of an Air Tractor AT-802A (a heavily utilized fixed-wing aerial application aircraft).[7]

This device does not hold FCC authorization today as its low-power design categorically excludes it from authorization through §91.227 ADS-B Out framework. It will be incumbent upon FAA to provide a pathway to support FCC authorization in line with the proposed §108.195(a)(2)(ii).

2. Are these EC devices approved for the same purpose as ADS-B Out? Do these alternate EC devices provide other benefits beyond what ADS-B Out offers? Are existing alternate EC devices used for, or capable of providing, anonymity?

NAAA views EC devices as strictly air-to-air deconfliction tools which need not be approved for the same purposes as ADS-B Out. They are not intended to support ATC separation services or controlled airspace access, and thus, EC devices should not be held as equivalents to ADS-B Out systems.

In terms of benefits beyond what ADS-B Out offers, the skyEcho is technically capable of maintaining anonymity. This is of critical importance to aerial application operations for security and safety reasons, as explained in NAAA's comments on the original NPRM.[5] Another benefit is the relatively low cost compared to an installed ADS-B Out system. This dramatically lowers the financial barrier to adoption and utilization. A final benefit to the skyEcho, in particular, is that it provides ADS-B In traffic data compatible for use with most Electronic Flight Bags, such as ForeFlight. This provides the opportunity to enhance situational awareness for pilots who initially employ these EC devices as a means to deconflict with UAS.

3. If not currently available, how quickly can alternate EC devices be available to the U.S. market once an approved standard is available?

NAAA is aware that a compliant variant of the skyEcho could be available within approximately six months of an approved standard and associated approval framework.

4. Would the performance requirements of § 91.227 applicable to ADS-B Out also be appropriate for alternate EC devices? Why or why not?

As previously stated, NAAA views EC devices as dedicated air-to-air deconfliction tools. The full performance requirements of §91.227, conversely, are based on the intended use for ATC surveillance and separation services. Holding EC devices to these requirements would impose

[7] FAA. September 2024. Final Report – Ground Assessment of Electronic Conspicuity Devices. https://uavionix.com/wp-content/uploads/2025/06/Electronic-Conspicuity-Final-Report-v9.0-Dec-16-2024-signatures_ssh_ss.pdf

certification, installation and cost burdens equivalent to an installed ADS-B Out system. This would undermine the adoption of EC and ultimately the safety benefits it offers.

NAAA recommends that FAA establish dedicated performance requirements for EC devices that uses §91.227 as a basis to ensure interoperability (i.e. §91.227(d) and (e)), but tailor it to simply prioritize robust air-to-air deconfliction.

5. RTCA has a standard for electronic conspicuity (RTCA DO-282C). Are there any reasons why applying this standard for alternate EC devices in the U.S. not be feasible or appropriate? Are there other existing industry consensus standards for EC that the FAA should consider accepting?

NAAA supports the application of RTCA DO-282C for EC devices, as it leverages existing infrastructure and operates on an aviation-protected spectrum. To reduce administrative burden, NAAA recommends that FAA afford full-time self-assigned addresses for EC devices. This will effectively enhance the anonymity that EC devices offer while fully preserving its role in air-to-air deconfliction.

6. What would be the potential downside(s) of requiring EC devices to include some sort of indicator (e.g., visual or audio) to notify the pilot that the device is not working properly?

In the task-saturated low-altitude aviation environment of aerial application operations, any further visual/audio stimuli can be a distraction risk. However, in the scope of the proposed right-of-way changes, it is crucial that a pilot be informed if an EC device is not broadcasting, as that pilot may have suddenly lost right-of-way over UAS.

EC device placement within the aircraft is critical to its efficacy, and thus it is conceivable that it would be located outside the pilot's line of sight. Consequently, NAAA suggests that audio indication of device failure would be more effective.

The posing of this question reveals EC (or ADS-B) to be a single point of failure in the proposed method of enabling BVLOS through ADS-B/EC-based right-of-way privileges and further supports the need for comprehensive detect and avoid (DAA) systems in all airspace.

7. Are there other methods or technologies that the FAA should consider allowing manned operators to use to be electronically detectable besides ADS-B Out or alternate EC devices?

NAAA is not aware of any alternative methods or technologies for this purpose. However, it is worthy to mention that being electronically detectable also requires UAS to be properly equipped to receive manned aircraft ADS-B Out or EC broadcasts. NAAA recommends that all Part 108 operations require ADS-B In, specifically by removing any relief from this requirement in §108.195(a) for §108.205 shielded operations.

Conclusion

NAAA continues to support the measured and most importantly safe integration of UAS into the NAS. Adoption of a robust EC framework for air-to-air deconfliction in all airspace environments, including shielded areas that is portable, low-cost and anonymous is a step in the right direction. However, NAAA finds that FAA has not sufficiently demonstrated the sole use of ADS-B or EC as a wholly reliable DAA method in the very low altitude airspace wherein aerial application operations take place. Until such evidence is made available, comprehensive DAA which does not solely rely on ADS-B or EC should be required in all airspace.

Thank you for the opportunity to comment.

Sincerely,

Andrew D. Moore
Chief Executive Officer