Formal Comment on Notice of Proposed Rulemaking (NPRM):
FAA Docket ID: FAA-2025-1908

Subject: Comments on Proposed Regulations Enabling Beyond Visual Line of Sight (BVLOS) Unmanned Aircraft Operations and Associated Airspace Management Services

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Submitted by:
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1. General Support and Appreciation

Vigilant Aerospace Systems, Inc. strongly supports and applauds the Federal Aviation Administration's (FAA) ongoing efforts to normalize Beyond Visual Line of Sight (BVLOS) operations for unmanned aircraft systems (UAS) in the U.S. National Airspace System (NAS). The proposed rule represents a crucial step toward enabling safe, routine, and scalable integration of UAS operations into the NAS, particularly for lower-risk operational environments. We commend the FAA's commitment to risk-based, data-driven policy development and its engagement with industry stakeholders throughout this process.

2. Vigilant Aerospace's Background and Expertise

Vigilant Aerospace's Chief Executive Officer was honored to serve as a member of the FAA's BVLOS Aviation Rulemaking Committee (ARC) contributing to the foundational recommendations that have informed this NPRM. In addition, both Vigilant Aerospace and its CEO have served for many years on critical technical standards development committees, including ASTM F38, multiple steering committees, and associated working groups. Through this work, we have actively contributed to the creation and refinement of numerous Means of Compliance (MOCs) and consensus standards that underpin the function of this and other emerging UAS regulations.

As a company, Vigilant Aerospace Systems, Inc. is a leading U.S. provider of multi-sensor detect-and-avoid (DAA) and airspace management systems based on two licensed NASA patents and multiple co-authored AIAA research papers. Our technology supports airspace surveillance across thousands of square kilometers of U.S. airspace in multiple states and incorporates standards-based algorithms and data fusion methods aligned with RTCA DO-365C (ACAS Xu), ASTM F3442, and other FAA-recognized standards. Our technology has been tapped by the U.S. Air Force for recent development of onboard detect-and-avoid for new UAS and by Advanced Air Mobility companies for their aircraft. Our systems already deliver effective DAA and airspace management system function and interoperability consistent with the performance expectations outlined in the NPRM.

3. Population Density and Detect-and-Avoid (DAA) Requirements

We respectfully recommend reconsidering the NPRM's approach to linking requirements for non-cooperative Detect-and-Avoid (DAA) systems primarily to population density. While population density is a reasonable proxy for certain ground risk elements, it does not accurately capture air risk—the likelihood of conflict with other aircraft.

Airspace class, existing air traffic density, and the nature of air traffic patterns offer a more precise, empirically validated basis for defining when non-cooperative DAA is required. Extensive prior research, including MIT Lincoln Lab's Traffic Density Database and related data, NASA's UTM System Safety Case analyses, RTCA SC-228 DAA performance frameworks, and Eurocontrol's Air Risk Class (ARC) methodologies, has demonstrated that air risk is a function of airspace usage and encounter rate, not solely of population below.

Accordingly, we suggest that DAA equipage and performance requirements be triggered by airspace classification (e.g., Class E vs. Class G), published traffic data, or encounter-rate modeling—rather than ground population. This approach ensures proportional safety requirements aligned with actual collision risk.

4. Part 146 – Automated Data Service Providers (ADSPs)

Vigilant Aerospace strongly supports the formal establishment of Automated Data Service Providers (ADSPs) in Part 146, but suggests the regulation explicitly require direct FAA certification, technical compliance oversight, and sustained funding for certification and management of these entities.

Specifically:
- FAA certification should ensure ADSPs comply with enforceable, testable standards such as ASTM F3548 (UAS Traffic Management UTM Standard) or successor standards.
- Compliance verification should include interoperability, latency, continuity, and reliability benchmarks.
- The FAA should maintain the authority and resources to monitor, audit, and, where necessary, enforce corrective action or decertification to maintain the integrity of the system.

Such measures will be essential for ensuring consistent safety, equity, and public trust in the federated ADSP ecosystem envisioned by this rule.

5. Machine-Readable and API-Driven Data Interfaces

We would suggest that all ADSP and FAA services supporting BVLOS flight under this rule be based on modern machine-readable, API-driven interfaces, preferably conforming to an open API standard like OpenAPI, for both FAA-to-provider and provider-to-provider data exchange.

Mandating modern, open, and standardized data interfaces ensures interoperability, scalability, and the ability to achieve strategic deconfliction and conformance monitoring in real time. The FAA's LAANC system and various aspects of the UTM concepts and ASTM F3548-21 provide a strong precedent for such data architectures, and continuity with existing standards would streamline ADSP integration.

6. Clarification and Improvement of §108.195 – Right-of-Way and Safe Distance

We recommend that §108.195 "Right-of-Way" be revised to add a repeatable, non-ambiguous method for determining "safe distance." This would improve the adoptability of this rule, help to provide objective guidance and improve both safety and accountability.

Proposed addition to §108.195(b):
"For purposes of this paragraph, a method acceptable to the Administrator includes any FAA-accepted means of compliance based on recognized industry standards (e.g., RTCA ACAS sXu / DO-386 series, ASTM F38 DAA performance standards) that establish minimum stand-off distances as a function of closure rate, aircraft detectability, and alerting latency. The Administrator should publish an Advisory Circular with example tables of minimum lateral/vertical stand-offs for typical low-altitude encounters to support uniform application."

7. Clarification of ADSP Service Levels (§146.110)

We recommend that §146.110 "Service Levels" include an additional paragraph or cross-referenced Advisory Circular defining ADSP services by safety criticality.

Suggested addition:
"The Administrator will designate authorized services by safety-criticality (e.g., Critical, Safety-Significant, Supportive). Strategic deconfliction, conformance monitoring alert dissemination, and DAA instruction services are at least Safety-Significant; any service issuing avoidance guidance to an operator is Critical."

8. Conclusion

Vigilant Aerospace appreciates the FAA's diligent work in developing this NPRM and stands ready to support its implementation. We encourage the FAA to incorporate the refinements proposed herein to ensure that the final rule achieves robust safety, clarity, interoperability, and long-term scalability for BVLOS operations across the NAS.

Respectfully submitted,
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