January 22, 2024

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Docket Number – FAA–2023–1377
Federal Aviation Administration
800 Independence Avenue SW
Washington, DC 20591

Re: The Commercial Drone Alliance's Comments on the Notice of Proposed Rulemaking about the Modernization of Special Airworthiness Certification [FAA–2023–1377]

To Whom it May Concern:

The Commercial Drone Alliance (CDA) appreciates the opportunity to respond to the Federal Aviation Administration's (FAA) Request for Comment on the agency's Notice of Proposed Rulemaking about the Modernization of Special Airworthiness Certification (hereafter the "MOSAIC NPRM").[1]

The CDA is an independent non-profit organization led by key members of the commercial drone industry. The CDA actively participates in legislative, regulatory, and policy efforts to facilitate the safe and secure development and expansion of commercial drone operations. The CDA works with all levels of government to collaborate on policies for industry growth and seeks to educate the public on the safe and responsible use of commercial drones to achieve economic benefits and humanitarian gains, including the countless public benefits enabled by uncrewed aircraft systems (UAS or drones). We bring together commercial drone end-users, manufacturers, service providers, advanced air mobility companies, drone security organizations, and vertical markets including oil and gas, precision agriculture, construction, security, communications technology, infrastructure, newsgathering, filmmaking, and more.[2]

Commercial UAS provide extraordinary benefits to the American public, including creating jobs, enhancing worker safety, fighting wildfires, promoting infrastructure resilience and revolutionizing inspections of critical infrastructure, expanding equitable and efficient access to critical supplies, enhancing public safety, homeland security, and emergency response, ensuring America's competitiveness in the global economy and leadership in global aviation, supporting the U.S. economy, generating tremendous economic value, and facilitating commercial

[1] 88 FR 47650 (July 24, 2023), Modernization of Special Airworthiness Certification.
[2] Learn more at www.commercialdronealliance.org.

deliveries. However, these lifesaving, economic, and societal benefits are simply not scalable under the current federal regulatory and policy framework in the United States.

The FAA has several efforts underway to address this hurdle and revisit the current framework for the certification and operation of UAS—most notably, rulemaking to enable routine and scalable beyond visual line-of-sight (BVLOS) UAS operations under a new Part 108 rule.[3] While this rulemaking is still under development, we believe many of the concepts proposed in the MOSAIC rule can be leveraged to support those UAS integration efforts. Consistent with the recommendations made to the FAA in the BVLOS Aviation Rulemaking Committee (ARC) Report,[4] the regulatory framework governing qualification of light-sport aircraft (LSA) can serve as a model for qualifying UAS under a new Part 108 rule. Leveraging the LSA framework will help accelerate the pace of integrating UAS into the National Airspace System (NAS).

Additionally, the MOSAIC NPRM, including its proposed amendments to 14 C.F.R. § 91.113, also provides the FAA with an opportunity to incorporate a "detection" element into the rule that will both enhance safety and alleviate unnecessary bureaucratic burdens that disproportionately impact the UAS community.

I. The Light-Sport Aircraft Qualification Process Should Serve as a Model for Risk- and Performance-Based UAS Rulemaking.

LSA are qualified under a declaration of compliance framework involving manufacturer declarations of compliance to applicable federal regulations, accepted industry consensus standards, and appropriate quality assurance and production controls.[5] The design and production of LSA are not certified by the FAA. This approach has worked; indeed, LSA have shown a lower accident rate than experimental amateur-built airplanes.[6] This level of FAA involvement in the certification and oversight of LSA airworthiness is based on a well-tested safety continuum concept (e.g., the rigor of certification requirements and operational limitations correlates with the public risk exposure for each aircraft and operation) that has been accepted by the general public for nearly 20 years and should help inform future rulemaking surrounding the certification and operation of UAS.[7]

A. The Current UAS Airworthiness Framework Is Not Appropriately Tailored to the Risks Posed by the Vast Majority of UAS

Unlike LSA, the airworthiness framework for UAS relies upon traditional FAA oversight processes originally developed for crewed aircraft, including issuance of type and production certificates (unless necessary regulatory relief has been obtained). These processes are not risk- or performance-based, and efforts to graft these existing FAA oversight processes onto UAS have largely failed to date.

Under the current regulatory framework, civil UAS operations that cannot be conducted under Part 107 require the uncrewed aircraft (UA) to have a standard or special class

[3] 88 FR 33855 (May 25, 2023), UAS Beyond Visual Line-of-Sight Operations.
[4] See UAS BVLOS Aviation Rulemaking Committee Final Report, March 10, 2022, https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/UAS_BVLOS_ARC_FINAL_REPORT_03102022.pdf (ARC Final Report).
[5] https://www.faa.gov/sites/faa.gov/files/aircraft/gen_av/light_sport/LSA_Buyers_Guide_2019.pdf (the FAA LSA Buyer's Guide, 2019).
[6] 88 FR at 47651, Modernization of Special Airworthiness Certification.
[7] 69 FR 44771 (July 27, 2004), Certification of Aircraft and Airmen for the Operation of Light-Sport Aircraft.

airworthiness certificate unless an appropriate grant of exemption is received under 49 U.S.C. § 44807 (and 14 C.F.R. Part 11), which is an extensive process that provides relief from the airworthiness certificate requirement. Standard airworthiness certification grants authorization to operate a certificated aircraft with the least restrictions, including for compensation and hire.[8] Special airworthiness certification significantly limits an aircraft's operation and use and is most commonly issued for research and development, showing compliance with regulations, training, exhibition, and market surveys.[9]

The FAA currently manages UAS airworthiness using type and production certification processes, with type certification being a prerequisite to obtaining a standard airworthiness certificate.[10] Relatedly, production certification is the FAA approval to manufacture FAA type-certificated products and aircraft produced under a production certificate holder's FAA-approved quality system are presumed airworthy and eligible for an airworthiness certificate without further showing to the FAA.[11]

The existing certification processes were developed for traditional aircraft operating on the higher-risk end of the aviation safety continuum, and they are not appropriately tailored to the risks posed by the vast majority of UAS. Moreover, unlike traditional aircraft, there are currently no generally applicable airworthiness standards for type certifying UA. As a result, the FAA must undertake lengthy (years-long) and resource-intensive rulemaking to develop custom airworthiness standards for each individual UA model going through certification.[12] To date, despite years of industry work and collaboration with the FAA by dozens of companies, with millions (if not billions) of dollars spent on the process, the FAA has only issued two UA standard type certificates.[13] Nor are these traditional certification processes necessary to ensure safe UA operations. As demonstrated by the success of the FAA's Criteria for Making 44807 Determinations (CMD) process, not all aircraft require a lengthy airworthiness standards development process before they can be reasonably, expeditiously and safely approved.

B. Qualification of UAS Airworthiness Should Mirror the FAA's Approach to Light-Sport Aircraft

Notably, aircraft operations conducted under the LSA airworthiness regime—including as amended under the MOSAIC NPRM—are riskier and more complex than UA, which do not carry people yet remain subject to the traditional airworthiness certification processes discussed above. For example, LSA that are qualified under a declaration-of-compliance framework can currently weigh up to 1,320 lbs. (~ 800,000 ft-lbs. of kinetic energy), carry up to two passengers, and fly up to 2,000 feet above ground level,[14] and the FAA is now contemplating an increase in privileges for LSA, including, but not limited to, conducting aerial work operations for compensation or hire and carriage of certain cargo related to the operator's business.

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[8] 14 C.F.R. § 21.175.

[9] See id.

[10] 14 C.F.R. § 21.183.

[11] 14 C.F.R. Part 21, Subpart G; https://www.faa.gov/uas/advanced_operations/certification.

[12] See 14 C.F.R. § 21.17(b); 85 FR 58251 (September 18, 2020), Type Certification of Certain Unmanned Aircraft Systems; FAA Order 8110.4C, Type Certification (which outlines the extensive requirements that a UAS applicant must follow under a five-phase design approval process). Although the FAA has attempted to streamline this process through its "Durability and Reliability" construct, such efforts have largely proven unfruitful despite years of work by UAS applicants and the agency.
See also https://www.faa.gov/uas/advanced_operations/certification/criteria_special_classes.

[13] The Matternet M2 UA and the Airobotics Optimus 1-EX UA.

[14] 69 FR 44772 (July 27, 2004), Certification of Aircraft and Airmen for the Operation of Light-Sport Aircraft; see also Chapter 9 of FAA Order 8130.2J, Airworthiness Certification of Aircraft.

Comparatively, the vast majority of UAS operations, which typically involve much smaller aircraft that do not carry crew, passengers or heavy cargo onboard, present significantly less risk to the public than LSA. Despite the substantial differences in where LSA and UAS operations sit on the risk continuum, UAS manufacturers and commercial UAS operators conducting operations outside of Part 107 are still subject to the resource-intensive certification and/or exemption processes described above.

The FAA's UAS BVLOS ARC recognized this disconnect in its Final Report to the FAA. As highlighted in that Report, there are stark contrasts between the risk-proportional, performance-based LSA airworthiness certification framework and the current framework for UA airworthiness certification, which is neither risk- or performance-based and results in an overly burdensome and unworkable certification process. The disconnect between the rigor of certification requirements for LSA and UA is further highlighted by the ARC's compelling observation that a UA on the heaviest end of the market typically generates, at maximum, the same kinetic energy as a lower performance LSA.[15]

To remedy this discrepancy, the ARC recommended that the qualification process for UA be guided by a safety continuum informed by the size of the UA, the UA's configuration, the UA's kinetic energy, the strategic and tactical mitigations undertaken, the conformance to proven industry-consensus standards, and, ultimately, the risk of the proposed operating environment.[16] Given the lower level of risk presented by UA, at a minimum, the weight limit for UA that may be qualified under the declarative compliance framework should align with the pre- and post-MOSAIC weight limits for qualifying LSA under a declarative framework.

The CDA strongly supports this approach in a new rulemaking to safely enable BVLOS UAS operations at scale.

II. The FAA Should Save Taxpayer Dollars and Agency Resources by Enabling Detection by Rule.

As the FAA considers amendments to the see-and-avoid requirement in 14 C.F.R. § 91.113, the CDA urges the FAA to incorporate a detection element into the rule which would allow UAS operators to meet the see-and-avoid requirement through the use of remote sensing technologies. The commercial UAS industry has long advocated for this type of revision which could eliminate the need to obtain a Certificate of Waiver or Authorization (COA) waiving § 91.113(b). As the commercial UAS industry has attempted to scale, so too have the COA applications increased, resulting in an increasingly unmanageable administrative burden for the FAA and applicants.[17]

To address this problem, the CDA recommends that the FAA make the following additional change to § 91.113(b) (new text in bold italics):

> (b) General. When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see***, or detect using a means acceptable to the Administrator***,** and avoid other aircraft. When a rule of this section gives another

[15] Section III (Chair's Comments), ARC Final Report; Part B of Section VII (Qualification Standards), ARC Final Report.
[16] Section VII (Qualification Standards), ARC Final Report; see generally ARC Final Report.
[17] For a compelling summary of this problem and its related consequences, please see the MOSAIC NPRM comments submitted by AURA Network Systems, Inc. (AURA) on October 23, 2023.

aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

Notably, the FAA has already accepted the use of a wide range of detection technologies via Part 107 waivers and Part 91 COAs as an adequate alternative means of compliance to § 91.113(b). These precedents, along with the existing body of consensus-based industry detect-and-avoid (DAA) standards (e.g., ASTM and RTCA), are strong evidence that these systems are mature enough to be safely integrated into UAS operations in the NAS.

Now is the time to add this detection language to the regulatory regime so that technical DAA systems that meet FAA-accepted industry consensus standards can be leveraged by UAS and LSA operators to enhance safety in the U.S. aviation industry. Doing so will not only improve safety, but also reduce unnecessary bureaucratic burdens imposed on the FAA and the UAS community. This change will help accelerate the safe scaling of UAS BVLOS operations that benefit the American public and also help maintain U.S. competitiveness as a global leader in aviation technology.

III. Conclusion

The CDA appreciates this opportunity to comment on the FAA's MOSAIC NPRM and commends the FAA's effort to review its data and modernize its regulatory frameworks. A similar approach should be adopted for future UAS rulemaking. The CDA looks forward to continuing to work with the FAA to accelerate the safe and secure integration of commercial drones into the NAS, which will unlock the countless benefits of commercial drone operations for the American people.

Respectfully submitted,

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