

December 20, 2022

William Penzes, Jr.,  
Center for Emerging Technology and Innovation Branch,  
Policy and Innovation Division,  
Aircraft Certification Service,  
Federal Aviation Administration,  
950 L'Enfant Plaza SW,  
Washington, DC 20591

**RE: Docket No. FAA-2021-0638 Airworthiness Criteria: Special Class Airworthiness Criteria for the Joby Aero, Inc. Model JAS4-1 Powered-Lift**

The National Business Aviation Association (NBAA) represents the interests of over 11,000 members who work in every aspect of business aviation, including designing, manufacturing, operating, and maintaining aircraft. NBAA and its members value providing safe and sustainable air transportation to support communities and businesses. As such, NBAA commends the Federal Aviation Administration (FAA) on critical groundbreaking efforts to certify new and emerging technologies including electric propulsion powered-lift vehicles to continue strides in safety, sustainability, and innovation.

**Safety.**

The FAA announced the availability of proposed airworthiness criteria for the Joby Aero, Inc. (Joby) Model JAS4-1 powered-lift aircraft. This vehicle does not meet existing definitions for airplanes or rotorcraft, nor does it conform to traditional current airworthiness standards. In accordance with Title 14 of the Code of Federal Regulations (CFR) part 21.17(b), the FAA must establish the applicable safety standards from Parts 23, 25, 27, 29, 31, 33, and 35 appropriate for the aircraft and applicable to a specific type design, or such airworthiness criteria as the FAA determines provides an equivalent level of safety to those parts.

NBAA appreciates the opportunity to provide input on the proposed Joby Aero, Inc. airworthiness criteria. It remains imperative that aviation uphold the high standard of safety achieved by decades of hard work and collaboration among the FAA, aircraft designers, manufactures, maintainers, operators, and the entire aviation industry. Transparency in the process ensures the entire industry remains part of the safety equation moving forward.

As the industry progresses, new risks may be discovered, such as the increased risk of bird strikes to quiet electric propulsion systems. Transparency and collaboration ensure risks are both recognized and mitigated. Establishing consistent performance-based regulations and safety standards will be an evolution as more data becomes available on electric vertical takeoff and landing aircraft. As the industry acquires and shares data, we urge the FAA to remain transparent and collaborative in evolving processes and communicating intentions.

**Sustainability.**

The FAA's effort to establish certification criteria for new types of aircraft and propulsion systems will reduce environmental and noise impacts while moving the aviation industry towards collective sustainability goals.

The electric engines on the Joby Model JAS4-1 powered-lift vehicle will use electrical power instead of air and fuel combustion to propel the aircraft. As a result, the aircraft's electric motors will produce fewer direct emissions than traditional fossil-fuel-powered reciprocating and turbine combustion engines, resulting in fewer greenhouse gas emissions from the aircraft's propulsion systems.

In October 2021, NBAA and the global business aviation industry committed to ongoing sustainability progress and attaining net-zero carbon emissions by 2050 through a combination of measures and in close partnership with stakeholders, particularly governments and critical sectors of the air transport industry. The U.S. and FAA contingents were instrumental in the 41st ICAO assembly's adoption of the long-term aspirational goal to reach net-zero carbon emissions by 2050. While propulsion systems have become increasingly efficient, new, innovative aircraft designs will have to be even more efficient, and sustainable propulsion systems, such as electric, will be crucial to reaching this goal.

NBAA has long contended that quiet flying is good business, establishing a voluntary noise abatement program in 1967. Even the quietest modern aircraft may disturb those that live near the airport, and operators should minimize noise impacts on airports' surrounding communities, which is in the best interest of all stakeholders. As the FAA clearly defines certification requirements for quiet, electric propulsion systems, these powered lift vehicles will contribute to reducing noise impacts on the communities supported by air transportation.

**Innovation.**

The FAA and the aviation industry continue to evolve by introducing new ideas, methods, and products. Through that evolution, we continue to rely on the FAA to ensure adoption and implementation meets established safety standards. By moving from prescriptive standards to performance-based airworthiness criteria during the rewrite of Part 23 in 2016, the FAA ensured innovative ideas would have a path toward certification, the public would have safe modes of transportation, and American creativity would persist.

The FAA's proposed airworthiness criteria include new or modified definitions to ensure the aircraft's unique capabilities are understood and meet minimum safety thresholds. Consequently, as the FAA moves towards certifying its first electric propulsion vertical lift aircraft with rotating propulsion mechanisms, the American public will know it is as safe as every other aircraft in the sky.

As an association dedicated to fostering business aviation in the U.S. and around the world, the promotion of new technologies is among NBAA's top priorities. As the FAA publishes each new set of airworthiness criteria for special classes of aircraft, it will pave the way for electrically

powered advanced air mobility (AAM) vehicles, which have the potential to dramatically increase the efficiency of on-demand aviation for companies and entrepreneurs.

NBAA applauds the FAA for developing a performance-based pathway to ensure certificated aircraft demonstrate required levels of safety. We look forward to working with the FAA as the agency further refines the certification process for innovative aircraft designs.

Sincerely,

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

Heidi J. Williams  
Senior Director, Air Traffic Services & Infrastructure