Supersonic Aircraft

Update on FAA Activities

Presented to:	Aeronautics and Space Engineering Board
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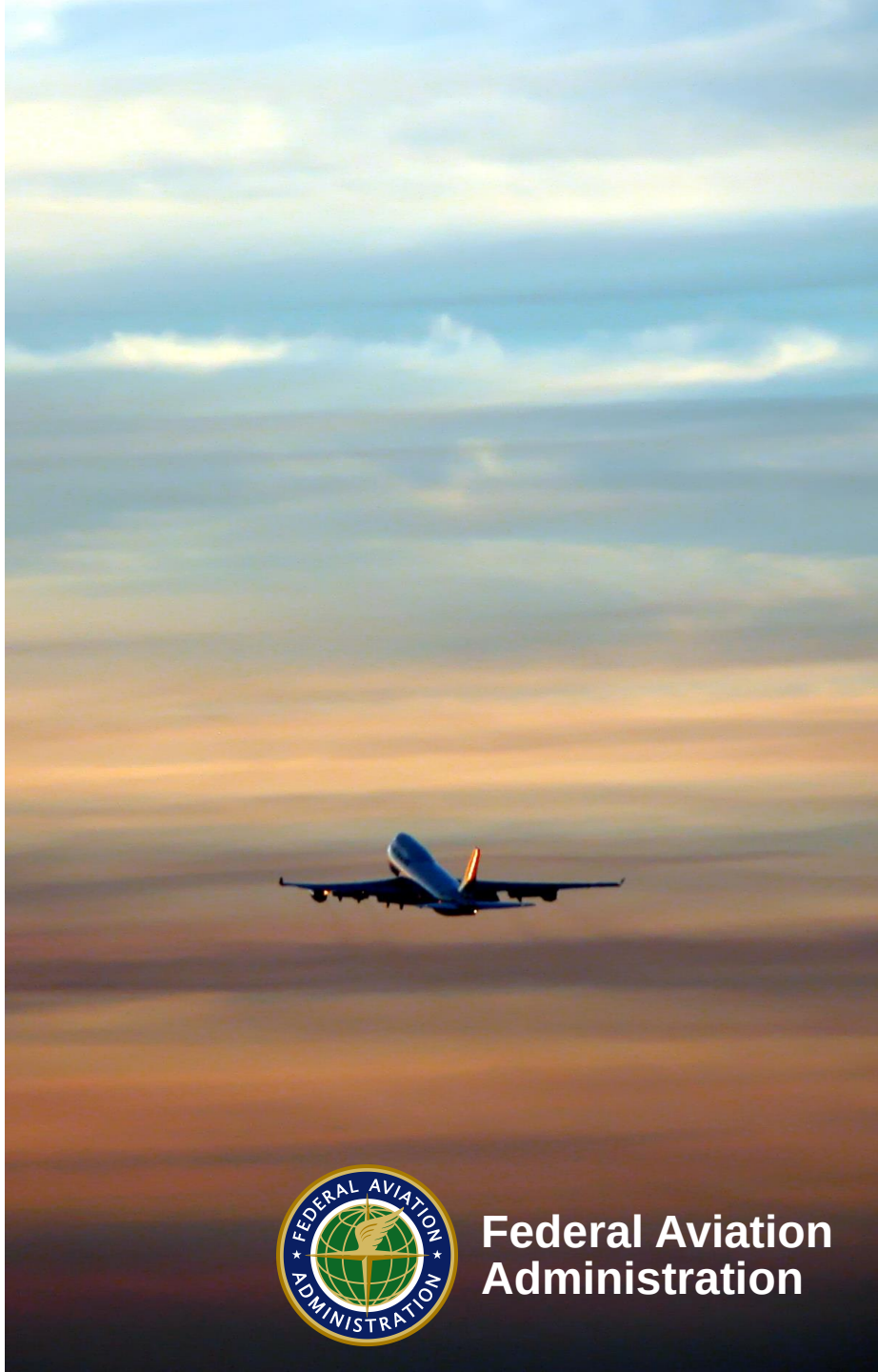
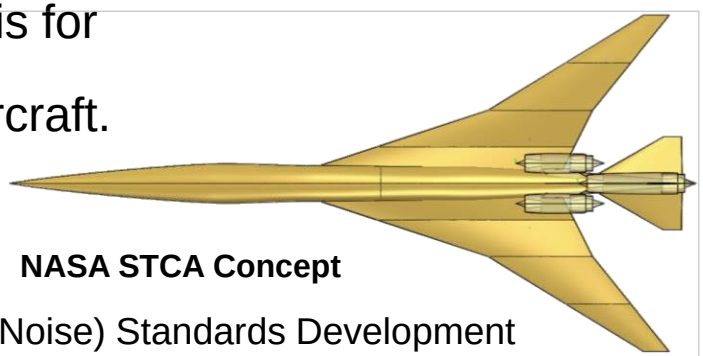


Overview

- **Research Activities**
- **Rulemaking**
  - Landing and Takeoff Noise Requirement
  - Supersonic Testing Requirements
- **International Engagement**
  - Standards development at the International Civil Aviation Organization

Supersonics R&D in FAA

Multiple research projects support technology analysis for rulemaking activity and development of new technologies for the next generation of supersonic aircraft.



NASA STCA Concept

ASCENT Supersonics Related Projects

https://ascent.aero/topic/supersonics/

- 007 (COMPLETE) - Civil, Supersonic Over Flight, Sonic Boom (Noise) Standards Development
- 010- Aircraft Technology Modeling and Assessment
- 022 - Evaluation of FAA Climate Tools
- 041 - Identification of Noise Acceptance Onset for Noise Certification Standards of Supersonic Airplanes
- 042 - Acoustical Model of Mach Cut-off
- 047 - Clean Sheet Supersonic Aircraft Engine Design and Performance
- 057 - Support for Supersonic Aircraft Noise Efforts in ICAO CAEP
- 058 - Improving Policy Analysis Tools to Evaluate Aircraft Operations in the Stratosphere
- 059 - Jet Noise Modeling to Support Low Noise Supersonic Aircraft Technology Development
- 074 - Low Emissions Pre-Mixed Combustion Technology for Supersonic Civil Transport

CLEEN Program

- Supersonic technology included in Solicitation for third five year phase of the CLEEN Program

Aviation Environmental Design Tool (AEDT) / ICAO CAEP

- Volpe Center coordinating efforts to include supersonic aircraft in AEDT
- Volpe Center BAH, and others assisting efforts to examine supersonic aircraft in ICAO CAEP

Supersonic Rulemaking

- **Landing and Takeoff Noise Certification Requirement**
  - In April 2020, the FAA published a “Notice of Proposed Rulemaking” (“**NPRM**”) to establish landing and takeoff noise certification requirements for new supersonic aircraft.
- **What does this rule propose to do?**
  - These noise certification standards would apply to noise levels during landing and takeoff (when the airplane is operated at subsonic speeds).
  - The rule would not change the existing prohibition on supersonic flight (Mach 1 or greater) over land in the United States, or otherwise address sonic boom.
- **Why is it necessary?**
  - Existing FAA noise certification requirements (Part 36) do not cover supersonic airplanes other than the Concorde.
  - Setting a noise certification standard will provide the regulatory certainty needed make critical design decisions and make substantial investments in airframe and engine programs.
- **Second rulemaking to streamline supersonic testing requirements**

International Engagement

- **FAA and NASA work together at the International Civil Aviation Organization ("ICAO") on supersonic standards**
  - The ICAO "Committee on Aviation Environmental Protection" develops international environmental standards for aviation including noise and emissions standards.
  - Work is underway to develop noise, local air quality emissions, and CO2 standards for supersonic aircraft.
  - Development of and agreement on international standards at ICAO is critical to being able to sell and operate aircraft throughout the world.

- **Next Steps**