



WORKING PAPER

COMMITTEE ON AVIATION ENVIRONMENTAL PROTECTION (CAEP)

TWELFTH MEETING

7 to 18 February 2022

Agenda Items 12: Aircraft noise

13: Supersonics

16: Future work

**VIEWS OF THE UNITED STATES ON SUPERSONIC AIRCRAFT NOISE FUTURE WORK
DURING THE CAEP/13 CYCLE**

(Presented by the United States of America)

SUMMARY

This paper presents the views of the United States on the supersonic work within the CAEP and, in particular, ongoing technical discussions in Working Group 1 (WG1) on noise. The United States is committed to advancing the development of supersonic aircraft, as part of our broader efforts to support innovation in transportation and infrastructure. The United States supports the WG1 proposal to develop a supersonic LTO Noise SARP during CAEP/13 based on Chapter 14 limits and continued work on a supersonic en route noise SARP.

Action by the CAEP is in paragraph 4.

1. INTRODUCTION

1.1 This paper presents the views of the United States on supersonic noise future work items for the CAEP/13 work programme. The contents of this paper aim to support discussions during the CAEP/12 meeting on future work. As previously decided at CAEP/9, all proposals for new work must be “fully scoped” with special attention given to “the resources available, the priority and the relevance of tasks, and a clear definition of the end products envisaged.” The United States believes this information is integral to CAEP’s decision-making process for the CAEP/13 work programme and as such, our support for future work depends on whether tasks are fully scoped, supported with initial analysis, and have been presented at SG/2021.

1.2 The United States recognizes the need for harmonized environmental standards, the role of CAEP within the development of these standards, and we support the CAEP process in developing such standards. For supersonic aircraft, we have been working through CAEP on developing noise certification standards since the development of Supersonic Task Group in CAEP/7. It is our goal to meet our statutory requirements through an internationally agreed upon standard.

2. CIVIL SUPERSONIC LANDING AND TAKEOFF (LTO) NOISE

2.1 The United States is pleased with the technical work completed during CAEP12 on supersonic aircraft. In particular, the results contained in the Exploratory Study (E-Study) Report (CAEP-SG/20213-WP/31 and CAEP12-WP/39) were useful to help understand the potential impacts of the addition to civil supersonic aircraft into the global fleet. We appreciate the work done to update the study since CAEP-SG/20213.

2.2 In addition, we are pleased to see the future work proposal made by WG1 to develop Supersonic LTO noise SARPs during the CAEP13 cycle. The United States fully supports this proposed work item, the timelines included in the N.10 Future Work Proposal in CAEP/12-WP/05, and will commit resources to support this work. We agree with the Industry Proposal (presented to WG1 as CAEP12_WG1_8_WP15) to continue working on supersonic LTO noise to a completed SARP early in the CAEP/13 cycle, including Chapter 14 limits, correlating parameter of MTOW, EPNL, advanced take-off procedures, landing procedures equivalent to subsonic standards, applicable to aeroplanes with cruise speeds up to Mach 1.8, and that the work focused in CAEP/13 be on establishing the certification procedures, requirements, and SARP text. The United States suggests that WG1 use the work accomplished for the E-Study as a starting point for such discussions.

3. CIVIL SUPERSONIC EN ROUTE NOISE

3.1 The Assembly Resolution 40-17 Appendix G reaffirms the importance it attaches to ensuring that no unacceptable situation for the public is created by sonic boom from supersonic aircraft in commercial service. The United States fully agrees with this statement. The use of “no unacceptable situation,” illustrates CAEP’s responsibility to ensure that there is no harm to the public based on the policy recommendations made to the Council. The United States strongly believes that when discussing sonic booms, the exact language from the Assembly Resolution should be used.

3.2 The United States supports the continuation of work towards a civil supersonic en route noise SARP in the CAEP 13 cycle and the timelines included in CAEP12-WP/35 Section 6.

3.3 The National Aeronautics and Space Administration’s (NASA) work on the Low-Boom Flight Demonstration (LBFD) mission will provide critical data into the standard setting work. NASA’s LBFD mission supports developing and validating technologies for quiet supersonic flight, including airframe design, sonic boom prediction and measurement tools, and community response to sound levels from supersonic flight over populations. With these research activities, NASA has committed to providing community response data supporting the development of en route noise SARPs to ICAO/CAEP. As part of this research, NASA proposed opportunities to deliver technical data to enable development of procedures, metrics and limits to ICAO during the CAEP13 and CAEP14 cycles. The NASA program details and proposed data sharing plans are provided in (CAEP12-WP/35 Appendix D). The latest LBFD schedule is provided in (CAEP/12-WP/35 Appendix E).

4. **ACTION BY THE CAEP**

4.1 The CAEP is invited to:

- a) agree with the WG1 future work proposal N.10 to include the development of a SST LTO Noise SARP in the CAEP13 Work Programme;
- b) recognize the U.S. view on the Assembly Resolution language regarding sonic booms;
- c) direct WG1 to continue engagement on a civil supersonic en route SARP; and
- d) note the continued commitment from the United States and NASA to provide data for a future Supersonic en Route Noise SARP.

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