



WORKING PAPER

ASSEMBLY — 40TH SESSION

EXECUTIVE COMMITTEE

Agenda Item 15: Environmental Protection – General provisions, Aircraft Noise and Local Air Quality – Policy and Standardization

VIEWS OF THE UNITED STATES ON CIVIL SUPERSONIC FLIGHT

(Presented by the United States)

EXECUTIVE SUMMARY

The United States is committed to advancing the development of supersonic aircraft, as part of our broader efforts to support innovation in transportation. We have been working through appropriate channels within ICAO to develop landing and take-off noise certification standards for supersonic aircraft, and it is critical that recent progress in this area continue. The United States is re-examining its policies and regulations concerning supersonic aircraft noise and engine emissions in light of domestic interest and efforts under the International Civil Aviation Organization's (ICAO) Committee on Aviation Environmental Protection (CAEP). Technical discussions within ICAO must continue towards the development of landing and take-off noise standards and recommended practices (SARPs) to enable industry to proceed with the development of supersonic aircraft. ICAO has a long history of completing robust analyses for making data-driven decisions that support SARPs. The United States believes that it is essential that a data-driven process be undertaken for the supersonic aircraft.

Action: The Assembly is invited to:

- a) Reaffirm the data-driven standard setting approach for new and innovative technologies like supersonic aircraft, which also address environmental considerations (i.e. technological feasibility, economic reasonableness, and environmental benefit of the technology);
- b) Agree that any decision on noise and emissions standards for new supersonic airplanes should be based on data and analysis by the Committee on Aviation Environmental Protection, and that existing subsonic noise and emissions standards may not be the appropriate benchmark for supersonic aircraft in light of technological feasibility; and,
- c) Agree that Council should prioritize the work on the Supersonic Exploratory Study being conducted by the Committee on Aviation Environmental Protection in order to enable technical discussions on future landing and take-off standards in the very near term.

<i>Strategic Objectives:</i>	This working paper relates to all safety, environmental protection, and capacity Strategic Objectives.
<i>Financial implications:</i>	This working paper has no significant financial implications.
<i>References:</i>	Annex 16 – <i>Environmental Protection</i>

1. INTRODUCTION

1.1 The United States is committed to advancing the development of supersonic aircraft, as part of our broader efforts to support innovation in transportation. The U.S. Federal Aviation Administration (FAA) is re-examining U.S. policies and regulations concerning supersonic aircraft noise and engine emissions in light of domestic interest and in support of efforts under the ICAO CAEP. We have been working through appropriate channels within ICAO to develop landing and take-off noise certification standards for supersonic aircraft, and it is critical that recent progress in this area continue.

1.2 In addition, U.S. manufacturers have committed to the development of the next generation of supersonic aircraft and aim to introduce those aircraft within the next five to ten years. Technical discussions within ICAO must continue towards the development of landing and take-off noise standards and recommended practices to enable industry to proceed with the development of supersonic aircraft.

2. DOMESTIC ACTIVITIES

2.1 In the FAA Reauthorization Act of 2018, the U.S. Congress included several provisions regarding supersonic aircraft, two of which require FAA to undertake rulemaking activities related to Part 91 and Part 36 of the FAA regulations for general operating and flight rules and noise standards, respectively.

2.2 FAA's proposed changes to Part 91 were published as a Notice of Proposed Rulemaking (NPRM) on June 28, 2019. The proposed rule is essentially a modernization and clarification of existing regulatory procedures to improve the process for obtaining FAA approval, known as a "special flight authorization," to test supersonic aircraft. This action is a small but important step to facilitate flight testing and enable the development of supersonic aircraft by U.S. manufacturers.

2.3 FAA is also in the process of preparing an NPRM for Part 36, focused on landing and take-off noise certification limits and procedures. The 2018 reauthorization requires FAA to publish the NPRM by March, 2020. While the details of the NPRM cannot be shared until it is published, we see the efforts associated with developing the NPRM as a future input into CAEP's supersonic landing and take-off noise standard setting process.

3. DISCUSSION

3.1 The United States recognizes the high number of innovative new aerospace entrants that are expected in the near future (e.g. Supersonic Transport, Unmanned Aircraft Systems, Urban Air Mobility). It is critical that ICAO implement its proven objective, data-driven standard setting process to address the certification needs of each new entrant in a timely manner. At the same time, we recognize that some flexibility may be needed to accommodate the realities of completely new vehicles under development, such as the need for standards to be developed prior to the operation of these vehicles and the availability of noise reduction technologies. ICAO Member States should not stand in the way of innovation by delaying important discussion and CAEP/Council decisions related to the certification of new aircraft types. It is important that ICAO not view new entrants as a potential problem, instead ICAO should see these challenges as an opportunity to integrate new concepts and ideas into our existing global airspace system.

3.2 Given the increased activity in the development of supersonic aircraft and the potential to introduce civil supersonic aircraft into the fleet in the near term, the ICAO CAEP has placed additional emphasis on the supersonic transport work programme from the noise technical perspectives during CAEP/12. The United States strongly supports this direction. For civil supersonic flight to become reality, the supersonic transport work programme will need to continue so CAEP's technical work will coincide with industry plans for certification and the first entry into service. Without continued work in CAEP, the possibility of harmonization decreases.

3.3 Within ICAO CAEP, work is currently underway on an exploratory study. CAEP has a long history of completing robust analyses for making data-driven decisions that support SARPs. The United States believes that it is essential that such a process be undertaken for the supersonic aircraft. We see the exploratory study as a reasonable step in the process and are supporting the study with substantial technical resources. The United States is focused on expeditiously performing the necessary technical work within ICAO CAEP, as we do with any other environmental standard, recognizing that there will be an appropriate time for policy decisions and political considerations following the technical work. Such discussions and decisions must occur in a timely manner, as manufacturers are awaiting the international aviation community's decision on certification levels before they can proceed with their development programs. Further delays by ICAO have the potential to negatively impact these manufacturers and their supersonic programs.

3.4 The work within ICAO CAEP will also inform considerations of updating existing supersonic engine emissions standards and whether any additional standards, namely a supersonic CO₂ standard, should be developed. The United States supports the ongoing efforts of CAEP, utilizing currently available information, to understand what elements of existing supersonic engine emissions standards require update, and to what extent they should be updated. The United States also supports the current CAEP remit to investigate whether the subsonic airplane CO₂ standard metric system is appropriate for supersonic airplanes.

3.5 Finally, the United States would like share its views on the frequently referenced language in Assembly Resolution A39-1 paragraph 1 which "reaffirms the importance" that the Assembly attaches "to ensuring that no unacceptable situation for the public is created by sonic boom." The United States interprets this language as specific to the issue of sonic boom and ensuring that sonic boom does not result in "unacceptable situations." In our view, any expansion of the scope of this language is unnecessary as the subsonic noise is adequately addressed via the landing and take-off noise standard process. Further, the United States does not support creating a new concept of "public acceptability." This term is subjective, imprecise, and not in line with the long-standing CAEP Terms of Reference that are premised on technological feasibility, environmental benefit and cost effectiveness.

4. CONCLUSION

4.1 Due to the expected entrance of civil supersonic aircraft into the fleet within the next five to ten years, development of supersonic landing and take-off noise certification standards must be a priority at ICAO. The necessary technical work within ICAO must move forward to enable development of these standards based on robust technical analyses. There will be an appropriate time for policy decisions and political considerations following the technical work.