



WORKING PAPER

COMMITTEE ON AVIATION ENVIRONMENTAL PROTECTION (CAEP)

TWELFTH MEETING

7 to 18 February 2022

Agenda Items 12: Aircraft Noise

16: Future work

VIEWS OF THE UNITED STATES ON FUTURE WORK RELATED TO EMERGING TECHNOLOGY AIRCRAFT

(Presented by the United States of America)

SUMMARY

This paper presents the views of the United States on Future Work related to Emerging Technology Aircraft (ETA). The United States notes increasing interest in ETA and highlights ongoing domestic activities regarding ETA. The United States supports the WG1 future work proposal regarding ETA.

Action by the CAEP is in paragraph 4.

1. INTRODUCTION

1.1 This paper presents the views of the United States on noise technical 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 is closely tracking developments regarding Emerging Technology Aircraft¹ (ETA) and has supported work in WG1 on monitoring such developments. We are aware of a number of companies from around the world that are developing ETA and are engaging with them directly, as well as with other regulators, to progress their certification programs. Given industry progress, interest,

¹ The United States supports the WG1 recommendation to use the phrase Emerging Technology Aircraft as a replacement for New Entrants and agrees with the WG1 definition proposed in CAEP/12-WP/37 Section 1.2.

and program timelines being proposed, we see the need for further work to enable harmonized international standards for these aircraft.

1.3 We commend ICAO's work creating two web pages to highlight the importance of ETA, namely the [Electric and Hybrid Aircraft Platform for Innovation](#) (E-HAPI) and [Noise from New Aircraft Concepts](#) web pages. Such pages are an important way to highlight the global efforts focused on ETA.

2. U.S. ACTIVITIES

2.1 The United States provided a detailed summary of our activities to the 6th meeting of WG1, which is included as (CAEP/12-WP/37 Appendix C). Since that time, the United States has invested significantly in further understanding the acoustics of ETA. In July and September 2021, the United States measured six UAS using newly designed protocols that were created to better understand the acoustics of these aircraft. The United States expects to be able to share some results of these measurements in the CAEP/13 cycle.

2.2 The United States has also been actively developing a certification basis for UAS manufacturers seeking a type certificate from the United States. Since these aircraft are not addressed appropriately by Annex 16, Volume 1 or our own regulations at 14 CFR part 36, the United States is developing a Rule of Particular Applicability (RPA) for each aircraft model as we build our noise databases for these aircraft types. To that end, on August 27, 2021, FAA published a [Notice of Proposed Rulemaking for Noise Certification Standards](#) for one aircraft model. The United States sees the development and publication of RPAs as positive steps towards the eventual development of a general rule (or rules) for UAS noise certification. Regarding UAM, the United States expects to follow a similar approach for aircraft that do not align with 14 CFR part 36.

2.3 In addition, other research and development programs are ongoing. For example, [NASA's Advanced Air Mobility National Campaign](#) is structured to promote public confidence and accelerate the realization of emerging aviation markets for passenger and cargo transportation in urban, suburban, rural, and regional environments. Another example is FAA's ASCENT program (<https://ascent.aero/>) that includes projects on noise modelling and noise measurement of ETA.

3. DISCUSSION

3.1 The United States appreciates the work accomplished by WG1 monitoring the developments of ETA noise and for suggesting future work on this topic for their CAEP/13 work programme.

3.2 The United States supports the WG1 proposal for future work developing noise certification approaches for ETA as noted in Future Work Task N.06 within CAEP/12-WP/05).

3.2.1 We support WG1 efforts to investigate the process used to create Annex 16, Volume I, Chapter 13 to evaluate its applicability to ETA. Such novel solutions may be needed as it is possible that certification timelines may require accelerated consideration within CAEP.

3.2.2 We agree with the WG1 assertion that the development of new Standards for aircraft noise certification should be a data-driven process and support the proposal to develop noise measurement guidelines for use in the acquisition of ETA noise data to support future noise Standards development work.

3.2.3 The United States will provide resources to progress such work in CAEP/13.

3.3 The United States appreciates ICCAIA's participation in WG1 discussions on this topic. It is clear that ICCAIA members directly involved in the development of these aircraft are in the best position to provide input into any future WG1 discussions on ETA. The United States notes that WG1 seeks volunteers to lead any future work task on ETA, and strongly suggests that ICCAIA volunteer to fill that role.

3.4 The United States also sees the need for continued coordination among regulators regarding ETA noise certification in the absence of any international standards, with the goal of resolving, to the extent possible, any differences in noise certification basis.

4. **ACTION BY THE CAEP**

4.1 The CAEP is invited to:

- a) agree with the WG1 future work proposal N.06 to include developing noise certification approaches for ETA in the CAEP/13 Work Programme;
- b) recognize U.S. activities to progress understanding of ETA Acoustics;
- c) support the U.S. suggestion that ICCAIA lead ETA future work proposed by WG1;
and
- d) encourage regulators to coordinate regarding ETA noise certification.

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