The Global Voice of Pilots

IFALPA

POSITION PAPER

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Introduction of Emerging Technology Aircraft in Civil Airspace

SUMMARY

Multiple examples of Emerging Technology Aircraft (ETA) are entering the market. This raises concerns with respect to safety[1] and the impact on existing airspace users.

Emerging Technology Aircraft should achieve a higher level of safety and comply with the same environmental standards as conventional aircraft. All environmental standards should be considered secondary to safety considerations, and the highest level of safety should be guaranteed for all operations in the same airspace.

The impact of emerging technologies on the level of safety and environmental performance of existing aircraft and operations should be assessed thoroughly and at the earliest stage of development.

An operating environment should be created that allows for the full benefit of these new sustainable technologies to be adopted while constantly increasing the level of safety and environmental performance of current airspace users.

INTRODUCTION

This paper presents a general position on the introduction of ETA and how they can be safely integrated into the current operating environment sustainably without reducing any safety requirements in place.

Emerging Technology Aircraft, sometimes referred to as New Entrants, are entering the market with diverse capabilities and flight profiles. ETA may be defined as those aircraft that are not covered by existing categories in current Annex 16 Volume 1 certification procedures (due to required test altitudes, weights, speeds, etc).

[1] See IFALPA Position Papers: 17POS08, 20POS05, 21POS17

These ETA include Unmanned Aircraft Systems (UAS), eVTOL aircraft, Advanced Air Mobility (AAM), supersonic/hypersonic aircraft, higher airspace and space operations (potentially based on or enabled by future technologies such as new propulsion technology, datalink communication, and artificial intelligence).

The different characteristics entail different flight profiles, different areas of operations (e.g. closer to populated areas for AAM), and different noise characteristics (e.g. for supersonic aircraft or UAS). The flight profiles may vary from very slow or stationary to high speed, high performance, and vertical profiles for commercial space operations. As these new flight profiles and technologies are introduced, it is essential to assess both the safety and environmental impact of the ETA in relation to existing safety and environmental standards, and the impact on current operations of existing airspace users.

The difference in performance of these new entrants is one of the primary challenges in accommodating the common use of airspace and facilities or transit through airspace, as it may influence or disrupt the existing orderly air traffic flow and capacity, both locally and regionally.

BACKGROUND

Certification requirements, including noise, for new technologies, which are part of the airworthiness process, should be no less stringent than current requirements. In fact, it should be an opportunity to increase the level of safety in line with industry and ICAO goals.

The noise impact from ETA such as UAS or AAM may extend beyond the airport surroundings, and public appreciation for aviation may decrease due to increased noise nuisance caused by ETA, among other secondary nuisance issues. The environmental impacts of new technologies should be part of the entire certification process.

With respect to emissions, special care should be given to stratospheric emissions and their impact on climate and contrail formation. These emissions and effects have different characteristics, are less well understood, and may have a longer lasting and larger climate impact.

POSITION

IFALPA supports the ICAO Assembly Resolution A41-9: New Entrants recognizes the need for a standardized and globally harmonized approach for new entrants in line with current standards and recommended practices and acknowledges that the regularity, environmental protection, and efficiency of current civil and military operations are not

disproportionately affected.

Safety should be the primary consideration when introducing standards for ETA, achieving the same or a higher level of safety. That entails safety for third parties, safety for other airspace users, and safety for the ETA.

In non-segregated airspace, all airspace users with new or well-established technologies should comply with globally harmonized standards based on the same level of safety and environmental performance. These ETA need to be considered as equal users of the aviation system when compared to current users. The design, the operation and the operator should comply with the same level of safety and environmental standards and should not be degraded to accommodate ETA.

The introduction of ETA should not interfere with existing airspace users or lead to operational restrictions for existing airspace users, which would lead to degraded safety or environmental efficiency for current players. ETA operations should fit into the existing ATM system and future ATM system upgrades and into the existing flight operations (e.g. departure profiles and routes, approach flight path angles and speeds). It should not hamper the efficient operation of conventional flights or reduce existing airspace capacity.

Available airspace for commercial transport operations should not be restricted to accommodate ETA in any way that hampers current operations.

Environmental certification requirements should be accomplished through formal rulemaking by the regulatory bodies and not through external processes to ensure that all new technologies are certified to the existing standards and methodology.

Special attention should be given to the specific noise characteristics (such as boom-noise), the noise impact more distant from the airport and non-acoustic factors, especially for UAS and AAM.

Public acceptance may be different, and factors such as flight predictability and subjective feelings of safety may increase the perceived nuisance of noise.

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