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ASSEMBLY — 41ST SESSION

TECHNICAL COMMISSION

Agenda Item 31: Aviation Safety and Air Navigation Standardization

PROPOSAL TO ICAO FOR TAKING A LEADERSHIP TOWARD GLOBAL HARMONIZATION ON EVTOL

(Presented by Japan)

EXECUTIVE SUMMARY

Japan will be one of the leading countries to launch commercial operation of electric vertical take-off and landing (eVTOL), planning to operate eVTOL as a transportation means, connecting the Expo venue to airports and/or vertiports in Osaka city at the Osaka- Kansai Expo in 2025. It is important to develop globally harmonized systems and standards for eVTOL airworthiness, etc., and we expect ICAO to take a strong leadership in the development of Standards and Recommended Practices (SARPs) and relevant documents for eVTOL that are consistent and cross-sectional among the relevant Annexes for eVTOL.

Action: The Assembly is invited to:

a) note Japan's efforts to launch commercial operation of eVTOL at the Osaka-Kansai Expo in 2025;
b) agree on the importance of developing globally harmonized systems and Standards for airworthiness, pilot licences, operations, vertiports, noise, traffic management and other sStandards pertinent to eVTOL; and
c) recommend that ICAO takes a strong leadership in initiating a study on the development of SARPs and relevant documents for eVTOL that are cross-sectional and consistent among the relevant Annexes.

Strategic Objectives:	This working paper relates to the Safety, Air Navigation Capacity and Efficiency and Environmental Protection Strategic Objectives.
Financial implications:	Not significant.
References:	

1. INTRODUCTION

1.1 Currently, electric vertical take-off and landing (eVTOL) is expected to become popular around the world and a lot of companies are developing eVTOL, seeking a chance to stake out an advantageous position in this emerging market.

1.2 Some eVTOL manufacturers have already conducted a number of flight tests and have initiated Type Certification procedures with regulatory authorities in their respective States of Design. Furthermore, some companies are considering to take roles in eVTOL operation and they are studying effective operational routes, and how to develop and operate vertiports.

1.3 In Japan, the public and private sectors are working together to promote the launch of eVTOL, with the aim of achieving a frequency of 20 flights per hour at the venue of the Osaka-Kansai Expo in 2025.

2. DISCUSSION

2.1 Japan established a public-private council in 2018 to study the introduction of eVTOL ahead of the rest of the world, and has been preparing a roadmap toward the launch of full-scale commercial operation of eVTOL in Japan. The roadmap sets the period until the Osaka-Kansai Expo in 2025 as the “Phase from test flights to the launch of commercial operation of eVTOL”, the period in the late 2020s as the “Phase for expanding commercial operation”, and the period after 2030s as the “Phase for further expansion of service areas, routes and number of flights”.

2.2 At the Osaka-Kansai Expo in 2025, Japan plans to operate eVTOL with a frequency of 20 flights per hour at the Expo venue in Yumeshima, assuming that eVTOL will be used for sightseeing flights around the venue and as a means of transportation between the venue and the airports or Osaka City. Toward the realization of this goal, along with the development of systems and standards for safety of aircraft and operations, pilot licences, etc., Japanese government and industry is working together on the development of systems and standards for traffic management for safe and smooth flights around the Expo venue and the airports. In addition, in view of the expected worldwide operation of eVTOL, efforts are being made to harmonize Japanese standards for eVTOL with American or European standards through communication with the respective aircraft manufacturers and the relevant authorities, so that type certification of eVTOL aircraft can be smoothly issued.

2.3 Currently, each State is taking its own individual approach with respect to systems such as airworthiness standards for eVTOL and requirements for vertiports. Moreover, since eVTOL is not yet type-certified, harmonization of systems and standards remains an individual effort among each State and is not a global effort.

2.4 Also, eVTOL is a quite novel type of aircraft that uses electric motor-driven rotors for vertically take-off and landing, therefore, is not treated consistently in each ICAO Annex so far.

2.5 To give an example, Annex1: Personal Licensing describes the licensing of powered-lift aircraft, and Annex 16 — *Environmental Protection*, Volume I — *Aircraft Noise* describes the noise of tilt-rotor aircraft, but no classification is given for this type of aircraft in Annex 7 — *Aircraft Nationality and Registration Marks*, and also Annex 6 — *Operation of Aircraft* and Annex 8 — *Airworthiness of Aircraft* etc. do not set Standards for this type of aircraft.

2.6 The inceptive eVTOL is expected to be a manned aircraft, and international operation of eVTOL is envisioned with the technical innovation around eVTOL. Therefore, it is extremely important to establish globally harmonized systems and standards before the development of eVTOL goes into full swing in each State. Particularly, the development of independent standards in each State would hamper the smooth acquisition of type certification of eVTOL in other State.

2.7 Also, eVTOL differs from conventional aircraft in terms of operational environment and operational areas, e.g. high density and low altitude operation over urban areas. Moreover, eVTOL is expected to fly into congested airports. Therefore, there is a risk of interference with drones and existing aircraft, in low altitude airspace. Each State is developing a new traffic management method and flight rule for eVTOL, and it is extremely important to establish globally harmonized systems and standards.

2.8 Further collaboration among the relevant sections within the ICAO Secretariat and various panels is required to develop SARPs and relevant documents that are cross-sectional and consistent among Annexes with respect to eVTOL. In this regard, Japan expects ICAO's strong leadership on this matter.

3. CONCLUSION

3.1 The public and private sectors in Japan are working together toward the early start of commercial eVTOL operation with the frequency of 20 flights per hour at the venue of the Osaka-Kansai Expo in 2025, connecting the venue to the airports or Osaka urban areas.

3.2 At present, each State is taking its own approach to establish systems and standards for eVTOL airworthiness, pilot licenses, operations, vertiports and noise, etc. However, for the fair and smooth international dissemination of eVTOL, it is desirable to develop globally harmonized systems and standards.

3.3 Japan expects ICAO's strong leadership in the development of SARPs and relevant documents for eVTOL that are cross-sectional and consistent among various relevant Annexes.

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