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PILOT OPERATION AND EXPLORATION OF CHINA'S LARGE FIXED-WING UNMANNED AIRCRAFT SYSTEMS (UAS) REGIONAL LOGISTICS SCENARIOS

(Presented by China)

EXECUTIVE SUMMARY

This document briefly introduces the background, progress, main content and significance of the pilot operation of China's large fixed-wing unmanned aircraft systems (UAS) regional logistics scenario. It is hoped that this work can provide reference for other countries in formulating relevant standards.

<i>Strategic Objectives:</i>	This working paper relates to the Security and Air Navigation Capacity and Efficiency Strategic Objectives.
<i>Financial implications:</i>	None
<i>References:</i>	None

¹ English and Chinese versions provided by China.

1. INTRODUCTION

1.1 As an important carrier of new technology and advanced productivity, unmanned aircraft systems (UAS) has become the core driver of the development of new aviation formats, among which logistics and transportation is an important field. Using UAS to carry out logistics transportation has the characteristics of intelligence, informatization and unmanned, which can greatly improve the efficiency of distribution and reduce costs in the future. Therefore, more and more countries and industries have paid attention to it.

1.2 In recent years, the booming e-commerce in China has further sunk to the central and western regions and rural areas of China. Compared with traditional ground transportation, the use of UAS to carry out regional line logistics transportation is more effective and flexible. Looking into the future, UAS regional line logistics transportation has broad application prospects in China.

1.3 At present, many Chinese enterprises are actively developing large regional logistics UAS, involving traditional fixed-wing and vertical takeoff and landing fixed-wing models according to different needs. Relatively leading products have emerged, among which two large fixed-wing models improved based on Y-5 aircraft have been put into operation.

1.4 In order to promote the development of UAS industry, the Civil Aviation Administration of China (CAAC) puts forward the concept of supervision classified, operation scenario oriented and operation risk based. In 2019, the CAAC adopted the Specific Operation Risk Assessment (SORA) method of JARUS (Joint Authorities for Rulemaking on Unmanned Systems) and issued an advisory notice on the Management Regulations for the trial operation of specific types of unmanned aerial vehicles (AC-92-2019-01), supporting operators to take the lead in trial operation under specific scenarios. To gradually establish the follow-up industry standards and legal system, and ultimately promote the development of the industry.

1.5 In the first half of 2022, the CAAC shall, in accordance with the advisory Circular, complete the review of documents, on-site inspection and test flight verification of FONAIR UAS Technologies Co. Ltd and Kunlun General Aviation Company, and approve FONAIR to use FH98 UAS to carry out regional logistics trial operation in northwest China. Approved Kunlun to use HY100 UAS to carry out regional line logistics trial operation in Xinjiang, China.

2. DISCUSSION

2.1 The pilot operation of regional logistics of FONAIR is the first commercial operation of regional logistics UAS approved by the CAAC.

2.2 CAAC carries out pilot work of regional logistics scenarios through coordinated promotion of airworthiness, operation and general aviation business license examination and approval. In this process, it summarizes the correlation and interface parts of various specialties, formulates the examination and approval work plan and makes flexible promotion.

2.3 In order to ensure that the operation of regional logistics should reach an acceptable level of safety, operation risk assessment is adopted as a prerequisite which determines the degree of regulatory intervention. At the present stage, by taking risk mitigation measures on the ground and in the air, operators can use large fixed-wing UAS that have completed phased airworthiness certification to operate

in isolation from manned aircraft in China's sparsely populated northwest and Xinjiang regions and explore commercial operation modes.

2.4 At present, the regional logistics scenario of large fixed-wing UAS is still in the exploratory stage, firstly in sparsely populated areas. In the future, CAAC will combine industrial practice, continuously improve operation safety supervision with operation practices, and provide data support and practical feedback for airworthiness certification, operation qualification certification and ability assessment of remote-control personnel....

3. CONCLUSION

3.1 CAAC takes the lead in pilot operation and exploration of large fixed-wing UAS regional logistics scenarios and has not issued corresponding operation management rules and standards internationally.

3.2 In the next step, CAAC will formulate more practical operation approval guidelines based on the accumulation of operation experience of pilot operation enterprises, put forward specific requirements for aircraft, operators and remote-control personnel, and timely share relevant progress, for the continuous attention of ICAO.

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