International Civil Aviation Organization

THE THIRTIETH MEETING OF THE COMMUNICATIONS / NAVIGATION AND SURVEILLANCE SUB-GROUP (CNS SG/30) OF APANPIRG

Bangkok, Thailand, 06 - 10 July 2026

Agenda Item 13: Innovation and New Technologies

CIVIL UNMANNED AIRCRAFT SYSTEM OPERATIONAL IDENTIFICATION PROGRESS IN CHINA: STANDARDIZATION AND IMPLEMENTATION

(Presented by China)

SUMMARY

This paper summarizes the Civil Unmanned Aircraft System Operational Identification project progress in China, from the perspective of standardization, implementation, and further application.

1. INTRODUCTION

1.1 During the year 2025, annual operational hours of civil unmanned aircraft in China have exceeded 45.3 million, with the number of registered unmanned aircraft reaching 3.28 million. For the massive scale of operations, insufficient surveillance measures will introduce significant impacts on safety, security, and other areas, and pose potential safety hazards to ground facilities, staff, and relevant subjects. Therefore, implementing effective low-altitude surveillance measures for unmanned aircraft systems is an urgent problem to be addressed. Based on this situation, a National Standard of the People's Republic of China -- Specification for Civil Unmanned Aircraft System Operational Identification (GB 46750 - 2025), has been developed by Civil Aviation Administration of China (CAAC). This specification requires unmanned aircraft systems to continuously transmit relevant operational information to the general public and regulatory authorities during operation.

1.2 This paper introduces the development background, technical characteristics, and implementations of the Specification for Civil Unmanned Aircraft System Operational Identification in China.

2. DISCUSSION

2.1 Mandating the unmanned aircraft to report the position, velocity, and operational status information is a main direction of research and practice across the world. FAA has published the Remote Identification of Unmanned Aircraft final rule (86 FR 4390, January 15, 2021), and EASA has adopted ASD-STAN prEN 4709-002 Aerospace series - Unmanned Aircraft Systems - Part 002: Direct Remote Identification, to require unmanned aircraft to broadcast operational status. The technology, refers to Remote-Identification, and adopted the standard published by ASTM *Standard Specification for Remote ID and Tracking (ASTM F3411-22a).*

2.2 It is not entirely consistent with the relevant international standards, which are mentioned above. Chinese specifications require unmanned aircraft systems to report Operational Identification messages by broadcast-based and network-based models simultaneously. This requirement arises from the large operational amount and diverse application scenarios in the Chinese low-altitude airspace. The comprehensive terrestrial network infrastructure provides abundant potential to facilitate this mode. And it can also support the Chinese Operational ID to apply a different data format with the International Remote ID (e.g., ASTM and ASD-STAN).

2.3 Technical Characteristics of Chinese Operational Identification

2.3.1 Civil unmanned aircraft system operational identification is defined as a process in which a civil unmanned aircraft system actively transmits messages of operational identification. Information in the message includes aircraft identification, system characteristics, and operation-related data. The message is transmitted through a compliant communication link during operation, received by a receiving system, and forwarded to a further data processing system.

2.3.2 The information required for reporting under the specification includes identification and operational status data, such as position, velocity, and controller location, to track unmanned aircraft movements. The message format is formulated following the design philosophy of the ASTERIX framework, featuring higher encoding efficiency and scalability. Data items and versions can be expanded and updated to accommodate future demands, while maintaining backward compatibility among the encoding of different versions.

2.3.3 The broadcast-based operational identification model is realized over Wi-Fi and Bluetooth 5 and later versions, without additional encryption mechanisms, so that the messages can be received by general civilian terminal devices. The complete operational identification information can be encapsulated in a single data packet, eliminating the need for additional message compilation during the data processing.

2.3.4 Network-based model establishes network connections between unmanned aircraft systems and the receiving and processing system. The message can be transmitted by the aircraft, remote control station, or cloud-based control platforms. At present, the receiving and processing system shall provide access interfaces for terrestrial wired networks and cellular mobile communication networks. With the gradual enhancement of system capabilities, the network-based model will support the satellite networks in the future.

2.4 Implementation of the Operational Identification in China

2.4.1 This Chinese National Standard of UAS Operational Identification has been published on 31st October 2025 and implemented from 1st May 2026, and the transition period and transitional solutions for in-service unmanned aircraft systems are also defined in it. In the near term, partial mandatory operational identification functions can be fulfilled via retrofitted external add-on modules. As of 1st May 2029, all civil unmanned aircraft systems falling under the application scope shall fully comply with the provisions of the specification before being put into operation.

2.4.2 Currently, the airborne transmitting unit can be high-level integrated into unmanned aircraft. The external add-on modules have a mass of less than 35 grams (Figure 1). The fixed broadcast-model receiver devices boast compact overall dimensions of 135mm×135mm×100mm (Figure 2), which enables large-scale layout and installation in urban and other areas. And the outputs of unmanned aircraft flight tracks are continuous and stable, with an effective coverage range exceeding 3 kilometers under favorable conditions (Figure 3).

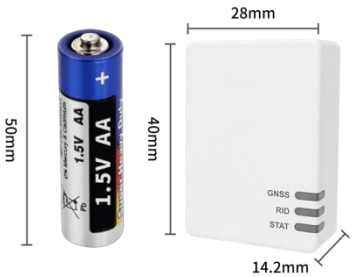

Figure 1: Size of External Add-on Modules

Figure 2: Fixed Broadcast-model Receiver Devices

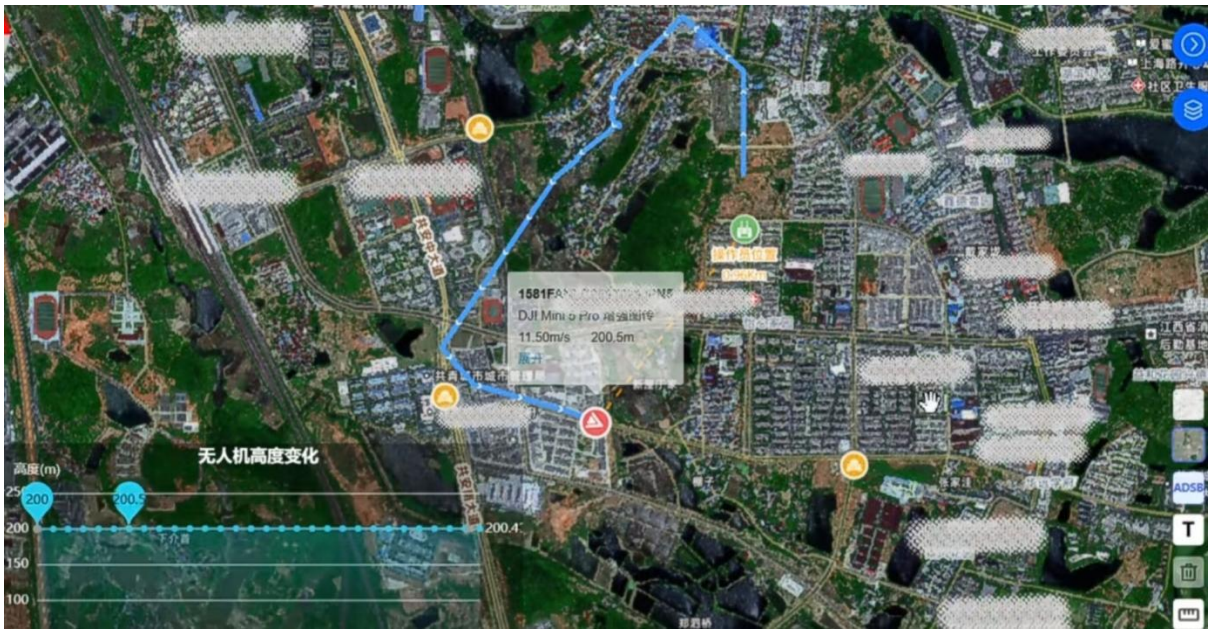

Figure 3 Test Flight Track

2.4.3 Up to now, more than 150 domestic unmanned aircraft system manufacturers have complied with the National Standard of operational identification, and the corresponding enterprise list has been published and updated in real time.

2.4.4 Along with the ongoing advances in information technology and terrestrial network transmission technologies, operational identification will further strengthen low-altitude surveillance capabilities. Its application scope will be further expanded, and in-depth research will be conducted on its adoption in air traffic control operations.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Note the status of civil unmanned aircraft system operational identification progress in China

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