

**57th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

*Incheon, Republic of Korea
4 – 8 July 2022*

AGENDA ITEM 3: AVIATION SAFETY

**INTRODUCTION OF THE SMALL UNMANNED AIRCRAFT
SYSTEM (sUAS) SAFETY MANAGEMENT SYSTEM**

Presented by the Republic of Korea

INFORMATION PAPER

SUMMARY

As the small Unmanned aircraft system (sUAS*) industry grows rapidly and the scope of application of the system gradually expands, accidents and safety-related issues are also increasing, raising the need for a safety management system.

**In the Republic of Korea, according to the empty weight, those weighing less than 150kg are classified as sUAS, and those exceeding 150kg are classified as aircraft under the Unmanned Aircraft System (UAS).*

This paper presents the definition of accident, defines accidents that need to be reported, and introduces the safety data classification and sharing system, which are being prepared for systemic and efficient safety management of sUAS.

Since it is necessary for each country to create a virtuous cycle, such as sUAS safety data analysis and monitoring, this paper proposes that the ICAO prepare general safety guidelines.

INTRODUCTION OF THE SMALL UNMANNED AIRCRAFT SYSTEM (sUAS) SAFETY MANAGEMENT SYSTEM

1. INTRODUCTION

1.1 In the 13th Amendment to Annex 13 (Aircraft accident and incident investigation), the ICAO recommends that the Member States offer the definition of Unmanned Aircraft System*(UAS) accidents and subject them to investigation.

Note: UAS with a maximum mass of over 2,250kg.

1.2 However, sUAS is not included in the ICAO international standards, which is why the FAA, EASA, etc. are investigating sUAS accidents and taking action on their own accounts.

1.3 Accordingly, the Republic of Korea is building a Comprehensive Safety Management System to define, address, and classify sUAS accidents.

2. DISCUSSION

Improvement of sUAS accident definition and establishment of guidelines for detailed operation of sUAS

2.1 Although the definition of sUAS accident is similar to that of an aircraft accident, sUAS needs a different definition, as it is unmanned and can be remotely controlled without pilot intervention.

2.2 Through the analysis of accident concepts used in the ICAO, USA, Europe, etc., the Republic of Korea is building a system that provides the definition of a sUAS accident, defines accidents that need to be reported, sets up reporting procedures, and collects, analyzes, and shares safety and accident data.

2.3 The definition of an accident is divided into three categories (damage to lives and property related to sUAS operation, and missing aircraft) and an accident that falls into one of these three categories is subjected to be reported

2.3.1 Damage to lives: an occurrence in which a person is fatally or seriously injured or goes missing as a result of sUAS operations similar to the ICAO definition of aircraft accidents

2.3.2 Property damage: an occurrence in which sUAS be the direct or indirect cause of property damage that exceeds 500,000 KRW – this is in reference to the insurance policies in Korea that generally do not cover damage less than 500,000 KRW and the FAA’s definition of accident, an occurrence that causes \$500 or more in property damage.

2.3.3 Missing sUAS: an occurrence in which the location of sUAS cannot be identified or inaccessible and is limited to the aircraft registered under the Aviation Safety Act (commercial, non-commercial use exceeding 2kg).

2.4 The accident reporting procedure will be improved so that the operators or owners of sUAS can report accidents to the relevant agencies, such as the Aviation and Railway Accident Investigation Board, using the ‘Comprehensive Safety Management System (expected to be completed in 2022)’ through PC, mobile web.

2.4.1 The “Comprehensive Safety Management System” provides information, such as pilot certifications and flight logs, aircraft registration status and statistics, accident data and statistics, and insurance coverage and payout.

2.4.2 The system will also allow users to check aircraft registration certificates and pilot certificates on mobile, using block-chain-based Distributed Identification (DID) technology*.

Note: It is possible to prevent forgery, counterfeiting, and personal information breach by storing data in a block, connecting it like a chain, then copying and storing it on multiple computers.

2.5 For systematic and efficient management of accident and safety data, a safety data classification system consistent with the aviation accident classification system (ICAO CICTT, 35 categories*) will be established, enabling the related agencies to share investigation results and utilize statistics.

Note: Among the 37 categories of the ICAO aviation accident classification system, 35 categories are included in the safety data classification system, excluding evacuation and cabin safety, including weather, operation, collision, fire, runway, ground, etc.

2.6 In addition, detailed operation guidelines on filing and processing accident reports, investigating accidents, and collecting, analyzing, and sharing safety data will be published for the operators or owners of sUAS.

The importance of establishing a global data collecting system for sUAS accident data and safety data

2.7 The aircraft safety management system has developed continuously. However, the sUAS safety management system has no global standard for safety data taxonomy despite its continuous growth and unlimited application, limiting data-based accident management.

2.8 Since governments need to establish a virtuous cycle in which collection, analysis, utilization, and monitoring of safety data (sUAS accident and safety hazard data) are carried out seamlessly, this paper proposes establishing standardized sUAS safety data guidelines to collect, share, utilize, and analyze national safety data.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to note the information contained in this Paper.