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INTRODUCTION OF CIVIL AVIATION ADMINISTRATION OF CHINA (CAAC) STANDARD "FRAMEWORK OF REGULATIONS AND STANDARDS FOR CIVIL UNMANNED AIRCRAFT SYSTEMS"

(Presented by China)

EXECUTIVE SUMMARY

This document briefly introduces the construction background, principles, ideas, and main contents of CAAC standards " Framework of Regulations and Standards for Civil Unmanned Aircraft Systems". It is hoped that the formulation of this standard can provide a reference for other countries in formulating relevant standards.

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| <i>Strategic Objectives:</i> | This working paper relates to the Safety 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 Rising along with the market demand and the improvement of the application scene, the global civil unmanned aircraft industry has shown a rapid development trend. To make unmanned aircraft system (UAS) "Fly up and Fly well" and to promote the safe, orderly and healthy development of the civil unmanned aircraft industry, civil aviation authorities around the world continuously introduce UAS management policies and standards.

1.2 Based on the strong design and manufacturing capability of UAS, the civil aviation administration of China (CAAC) has continuously carried out the construction of UAS pilot programs and the trial operation of specific types of UASs. Besides, CAAC establishes and continuously improves related UAS standards through pilot operation experience. As of March 31, 2022, there are more than 10 UAS normative documents, 22 Chinese national standards, 5 civil aviation industry standards, and 116 group standards in effect, covering R&D, manufacturing, airworthiness, operation, work quality, and other fields.

1.3 On the basis of regulations and standards in the field of civil unmanned aircraft, a scientific organic whole shall be formed according to their internal connections, and the framework of regulations and standards for civil unmanned aircraft systems shall be formed by using system theory. The establishment of the standard system is the foundation and premise for guiding the standardization of civil unmanned aircraft systems and the construction of the standard system. Apart from that, it is also the basis for compiling standards and revising plans and programming. The standard system contains the blueprint of existing, due, and expected standards, and it is a standard system model.

1.4 Since 2018, CAAC has gradually condensed and formed a framework of regulations and standards for civil unmanned aircraft systems based on preliminary work, and continuously revised and improved them.

2. DISCUSSION

2.1 All kinds of regulations and standards of civil unmanned aircraft systems were still in the stage of exploration and formation. In keeping with the principles of superior laws and national standards, combined with the experience of trial operations and pilot programs, CAAC has organized the formulation of the framework of regulations and standards for civil unmanned aircraft systems, which highlights applicability, universality and guiding requirements.

2.2 The framework of regulations and standards for civil unmanned aircraft systems adopts the mode of one regulation, several normative documents and policy documents (CE5), and several technical standards.

2.3 The architecture is refined according to the whole life cycle of the civil unmanned aircraft system, which contains R&D, manufacturing, airworthiness certification, and operation. Besides, it is constructed through three dimensions: "Initial Airworthiness Requirements", "Operational Requirements", and "management Requirements". The system requires that the architecture be constructed sequentially through administration elements (human, machine, environment, management), risk categories (open categories, specific categories, and approved categories), and style forms (management categories and technical categories)

2.4 The overall structure of the "Framework of Regulations and Standards for Civil Unmanned Aircraft Systems" includes three chapters and two appendices. They are the construction

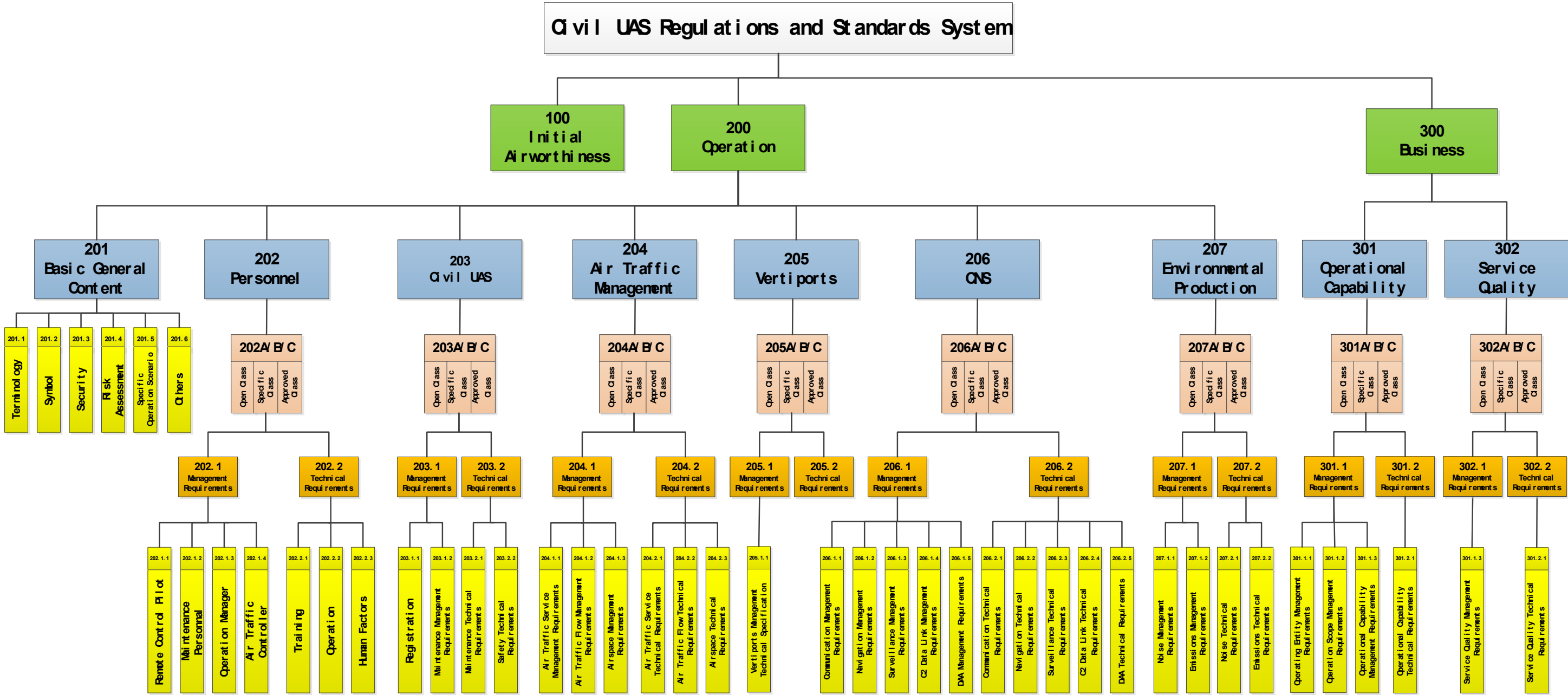
principles of Chapter A, construction ideas of Chapter B, construction contents of Chapter C, framework diagram of regulations and standards for civil unmanned aircraft systems of Appendix A, and industry-standard catalog of civil unmanned aircraft systems of Appendix B. For details, please refer to the Appendix "Framework of Regulations and Standards for Civil Unmanned Aircraft Systems".

3. CONCLUSION

3.1 CAAC actively explores and formulates regulations and standards for civil unmanned aircraft systems. According to the "Framework of Regulations and Standards for Civil Unmanned Aircraft Systems", CAAC will further refine and develop the more widely applicable regulations and standards for Civil Unmanned Aircraft Systems based on the exploration and practice of UAS trial operation units and UAS pilot programs, together with that, CAAC will further promote the development of UAS and share relevant progress promptly. We welcome the continued attention of the International Civil Aviation Organization.

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Appendix A
Guidelines for the Construction of Regulations and Standards System for Civil UAS V1.0



Appendix B
Catalogue of Industry Standards for Civil UAS

| N0. | System Number | Branch Number | Serial Number | Standard Content | Standard State | Priority |
|-----|------------------------------|--------------------------------|---------------|--|------------------|----------|
| 1 | 201 - Basic General Content | | 201.3 | Accident investigation and accident symptom standard of civil UAS operation | to be developed. | 3 |
| 2 | 201 - Basic General Content | | 201.3 | Requirements for security objectives of civil UAS operation | to be developed. | 2 |
| 3 | 201 - Basic General Content | | 201.3 | Assessment test for impact injury of small civil UAS to ground personnel | to be developed. | 2 |
| 4 | 201 - Basic General Content | | 201.5 | General requirements for logistics UAS operation (Part I: Island Scenarios | developing | 1 |
| 5 | 202 - Personnel | 202.2 - Technical Requirements | 202.2.2 | Flight rules for civil UAS | to be developed | 3 |
| 6 | 202 - Personnel | 202.2 - Technical Requirements | 202.2.2 | Distributed operation class division of civil UAS | developing | 1 |
| 7 | 202 - Personnel | 202.2 - Technical Requirements | 202.2.2 | Technical specification for simulation test of distributed operation level of civil UAS | to be developed | 2 |
| 8 | 203 - Civil UAS | 203.2 - Technical Requirements | 203.2.1 | Data interface exchange specification for real-name registration of civil UAS | developing | 1 |
| 9 | 203 - Civil UAS | 203.2 - Technical Requirements | 203.2.2 | Technical requirements for civil aviation flight verification based on UAS (Part I: Aircraft; Part II: Flight Verification System) | to be developed | 2 |
| 10 | 203 - Civil UAS | 203.2 - Technical Requirements | 203.2.2 | Blockchain-based technical standard for civil UAS flight data storage | developing | 1 |
| 11 | 203 - Civil UAS | 203.2 - Technical Requirements | 203.2.2 | Guidelines for evaluation of civil UAS information security level protection | to be developed | 2 |
| 12 | 203 - Civil UAS | 203.2 - Technical Requirements | 203.2.2 | Technical requirements for electric multi-rotor UAS (light and small) for urban scene logistics (MH/T 6126-2022) | developed | |
| 13 | 203 - Civil UAS | 203.2 - Technical Requirements | 203.2.2 | Technical specification for operating flight of UAS (MH/T 1069-2018) | developed | |
| 14 | 203 - Civil UAS | 203.2 - Technical Requirements | 203.2.2 | Drone fence (MH/T 2008-2017) | developed | |
| 15 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.1 | Flight reference altitude specification for civil UAS | to be developed | 2 |
| 16 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.1 | civil UAS air traffic service requirements | developing | 1 |
| 17 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.1 | Data interface specification for civil UAS air traffic management information service system (MH/T 4053-2022) | developed | |
| 18 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.3 | Specification for airspace delineation of light UAS in civil airports | developing | 1 |
| 19 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.3 | Specification for logistics route planning for light and small UAS in urban scenarios (MH/T 4054-2022) | developed | |
| 20 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.3 | Specification for the design of UAS flight routes in feeder logistics scenarios | to be developed | 2 |
| 21 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.3 | Civil UAS arrival and departure flight and sequencing procedures | to be developed | 2 |
| 22 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.3 | Civil UAS flight safety separation standard | to be developed | 2 |
| 23 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.3 | Technical specification for low-altitude route network planning for civil UAS | to be developed | 2 |

| N0. | System Number | Branch Number | Serial Number | Standard Content | Standard State | Priority |
|-----|------------------------------|---------------------------------|---------------|--|-----------------|----------|
| 24 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.3 | Specification for digitization of airspace information of civil UAS | to be developed | 2 |
| 25 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.3 | Interface data specification for UAV Cloud System (MH/T 2009-2017) | developed | |
| 26 | 204 - Air Traffic Management | 204.2 - Technical Requirements | 204.2.3 | Data specification for UAV Cloud System (MH/T 2011-2019) | developed | |
| 27 | 205 - Vertiports | 205.2 - Technical Requirements | 205.2 | Technical specification for vertiports management of civil UAS | to be developed | 3 |
| 28 | 206 - CNS | 206.2 - Technical Requirements | 206.2.1 | General technical standard for surveillance, command control and communication systems of remotely piloted aircraft (RPAS) | to be developed | 3 |
| 29 | 206 - CNS | 206.2 - Technical Requirements | 206.2.2 | Technical standard for civil UAS navigation system | to be developed | 3 |
| 30 | 206 - CNS | 206.2 - Technical Requirements | 206.2.3 | Technical standard for civil UAS operation identification system | to be developed | 2 |
| 31 | 206 - CNS | 206.2 - Technical Requirements | 206.2.3 | Technical standard for civil UAS surveillance system | to be developed | 3 |
| 32 | 206 - CNS | 206.2 - Technical Requirements | 206.2.5 | Technical standard for remotely piloted aircraft (RPAS) detection and avoidance (DAA) systems | to be developed | 3 |
| 33 | 206 - CNS | 206.2 - Technical Requirements | 206.2.4 | Technical standard for civil UAS Command and Control (C2) Link system | to be developed | 2 |
| 34 | 301 - Business | 301.1 - Management Requirements | 301.1.2 | Specification for commercial cargo operation services of civil UAS | to be developed | 2 |

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