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**Interface specifications of unmanned aircraft and cloud system
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was proposed by the Flight Standards Department of the Civil Aviation Administration of China.

This standard is under the jurisdiction of the China Academy of Civil Aviation Science and Technology.

The organization responsible for drafting this standard. China Civil Aviation Science and Technology Research Institute.

Participants in drafting this standard. China Aircraft Owners and Pilots Association, Qingdao Cloud Century Information Technology Co., Ltd., Beijing Cathay Pacific Beidou Technology Co., Ltd., Jiangsu Digital Eagle Technology Development Co., Ltd., Beijing Youyun Zhixiang Aviation Technology Co., Ltd., Ewatt Technology Co., Ltd.

Company, CLP (Deyang Guanghan) Special Aircraft Systems Co., Ltd.

1 Scope

This standard specifies the data transmission requirements, data encryption requirements, coding rules, Performance requirements.

This standard applies to light and small civilian UAV systems operating in China.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

3.1 Terms and definitions

3.1.1

Unmanned aircraft cloud provider Operators who establish, maintain and maintain the operation of UAV cloud systems.

4 UAV system and UAV cloud system

The UAV system and the UAV cloud system carry out two-way communication in accordance with the data interface required by this standard. The communication content should include registration information.

Dynamic information, data types, difference data, etc. UAV users can choose to join the UAV cloud system according to their operational needs.

The system can provide navigation services and weather services to UAV users, and conduct real-time monitoring of UAV operating data. The drone system should fly Line data is reported in time, and the UAV cloud system can trigger functions such as the UAV fence triggering alarm for the added UAV.

5.1 Basic data requirements

The UAV system should have wired or wireless communication functions, and the transmission data transmission interval should meet the 14.1.2 a in AC-91-FS-2015-31 According to the requirements of b, once the network is interrupted, there is a data temporary storage mechanism, and the data will be resumed immediately after the network is restored, and no one will be recorded in real time the flight trajectory of the aircraft and the time of record keeping shall meet the requirements of AC-91-FS-2015-31.

5.2.1 Registration Information

The registration information is the information that the drone system transmits to the drone cloud system and the drone cloud system is the code generated by the drone.

Should include at least.

- a) Product serial number (MSN). Each drone manufacturer defines the factory number of the drone system, which consists of multiple characters the product serial number requirements are consistent with those registered in the real-name authentication system;
- b) Flight control system serial number (FCSN). The flight control system number defined by each manufacturer and consists of multiple characters;
- c) Nationality registration mark or real-name registration number (REG). the registration number is determined by the airworthiness certification department;
- d) The number (CPN) generated by the drone cloud operator (hereinafter referred to as the operator) for the drone in the cloud system. consists of multiple characters Composition, only the first six characters are required, the first three characters of these six characters are the operator code, the fourth to the sixth the characters represent the category of the drone. The fourth character represents the category in the UAV operation management classification, namely I~VII, which the corresponding relationship is shown in Table 1; the fifth character corresponds to the category corresponding to the drone, see Table 2 for details, and the sixth character is a reserved bit.

5.2.3 Data type description

5.2.3.1

The data type description of UAV cloud system is shown in Table 4.

5.2.3.2

See Table 5 for the description of UAV cloud system data information types.

5.3 Difference data

In order to improve the efficiency of data transmission, when the amount of transmitted data is large, in the case of meeting the data update rate requirements, according to the update time the unit only provides data items that are different from the previous data package. According to the characteristics of dynamic information and static information, the difference data only includes but not complete all include the content in the dynamic information (see Table 3) in the interface transmission data.

6 Data transmission requirements from UAV cloud system to UAV system

The UAV cloud system should have wired or wireless communication functions, and the data transmitted by the UAV cloud system and the UAV system should include the following for details, see Table 6 for specific data types.

7 Data transmission encryption requirements

To ensure the security of data transmission, data transmission should be encrypted, and the specific transmission protocol, encryption algorithm, and minimum key length should be specified.

Degree agreement, etc.

8 CPN coding rules

CPN coding rules are shown in Figure 1.

9.1 Basic requirements

9.1.1

The data provided by the UAV system to the UAV cloud system includes the data items required in 5.1 and 5.2.

9.1.2

The data provided by the UAV cloud system to the UAV system should include the command data items required in Chapter 6.

9.1.3

The test should be conducted in an environment that satisfies the operation and communication of the UAV system and UAV cloud system.

9.2 UAV cloud system interface level

9.2.1

The UAV system and UAV cloud system interfaces that meet the requirements of Chapter 5 of this standard are Class A.

9.2.2

The interface of UAV system and UAV cloud system that meets the requirements of Chapter 5 and Chapter 6 of this standard is Class B.