

ICS 49.020
CCS V05



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 44717-2024

**Requirements and methods for reliability flight test of civil
unmanned aircraft system**

民用无人机可靠性飞行试验要求与方法

Issued on: September 29, 2024

Implemented on: January 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Abbreviations	1
5 General Requirements	1
5.1 Test Purpose	1
5.2 Test Outline	1
5.3 Test subjects	2
5.4 Test personnel	2
5.5 Test data	2
5.6 Test conditions	2
5.7 Test report	2
6 Flight test requirements	2
6.1 General	2
6.2 Quantitative Evaluation	2
6.3 Qualitative evaluation	3
6.4 Reliability test flight	3
7 Flight test methods	3
7.1 Quantitative parameter evaluation method	3
7.2 Qualitative requirements evaluation method	4
7.3 Reliability test flight method	4
8 Data collection and processing	4
8.1 Data Collection	4
6 Appendix B (Normative) Reliability parameter evaluation method 7 B.1 Mean flight hours between failures 7 B.2 Mean time between serious failures 7 B.3 Mission Reliability	7

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this

document does not assume the responsibility for identifying patents. This document is proposed and coordinated by the National Aircraft Standardization Technical Committee (SAC/TC435). This document was drafted by: China Flight Test Establishment, China Aviation Technology Research Institute, Shenyang Aircraft Corporation of China Aviation Industry Corporation Institute of Computer Design, Beijing University of Posts and Telecommunications, Shenzhen Dingfeng Unlimited Electronics Co., Ltd., Northwestern Polytechnical University, Nanjing University of Aeronautics and Astronautics, China The 54th Institute of Electronic Technology Group Corporation, Tongji University, and Zhejiang Hongfei Aerospace Technology Co., Ltd. The main drafters of this document are. Fang Jianfeng, Chen Xingxing, Shu Zhenjie, Ma Tao, Hu Yingdong, Huang Zhun, Song Haijing, Qu Bin, Zhong Hai, Tang Jian, Wang Xin, Wang Weimin, Yang Xianping, Li Jian, Jin Ying, Ou Hongfang, Lai Jizhou, Lv Pin, Fu Wenxing, Deng Wenjian, Yang Hongwei, He Xingyang, Ji Wen, Qu Huaigeng, He Zhiqi, Shang Wei, Wang Jue, Wu Yongle, Wei Mengyuan, Zhao Rujuan, Zhang Zejing, Wang Guijuan, Shi Guichao, and Wang Jiuyuan. Requirements and methods for reliability flight test of civil unmanned aerial vehicles

1 Scope

GB/T 44717-2024 sets the requirements and methods for reliability flight testing of civil unmanned aircraft systems. Reliability is the property on which the regulatory acceptance of uncrewed flight over people and beyond visual line of sight ultimately rests, and unlike a crewed aircraft the evidence cannot come from decades of service data, so it has to come from a designed test programme. The standard sets the general requirements, the definition of the system under test and its configuration, the reliability indices to be demonstrated and the mission profile they are defined against, then the test planning, the flight profiles and their number, the environmental and operational conditions to be covered, the instrumentation and data recording, the classification and adjudication of failures and the distinction between relevant and non-relevant ones, the accumulation of flight hours and cycles, the statistical evaluation and the demonstration of the index at a stated confidence, and the reporting. It takes effect on 1 January 2025.

This document specifies the requirements, test methods and test data for the reliability flight test of civil unmanned aerial vehicle systems (hereinafter referred to as "UAVs"). Data collection and processing. This document is applicable to the reliability flight test of civil UAVs.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This

document.

GB/T 4087 Statistical processing and interpretation of data Binomial distribution Reliability one-sided confidence limit

GB/T 35018 Classification and classification of civil unmanned aerial vehicle systems

GB/T 38152 Terminology of Unmanned Aircraft Systems

3 Terms and definitions

The terms and definitions defined in GB/T 35018 and GB/T 38152 and the following apply to this document.

3.1 Verify that the drone and its components are reliable and function and perform properly under the expected use environment through a certain amount of flight time. Regular flight tests.

4 Abbreviations

The following abbreviations apply to this document.

5 General requirements

5.1 Purpose of the test The objectives of reliability flight tests should include.

- a) Verify the reliability of the drone;
- b) Identify problems and deficiencies, provide a basis for design changes, and achieve reliability improvement.

5.2 Test Outline A reliability flight test program should be prepared and approved to standardize the reliability flight test requirements, methods and data processing.