

ICS 49.090

MH

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

MH/T 2006-2013

**A small aircraft flight record system performance specifications
(English Translation)**

Issued on: November 11, 2013

Implemented on: January 3, 2014

Issued by: Civil Aviation Administration of China

Table of Contents

Foreword
1 Scope
2 Terms and definitions
3 Basic requirements for flight recorders
3.1 Security requirements
3.2 Maintainability requirements
3.3 Flame retardancy requirements
3.4 Fallability requirements
3.5 Synchronization requirements
3.6 Operational requirements
3.7 Labeling requirements
3.8 Bit Error Rate Requirements
3.9 Software Management
4 Performance Specifications of Flight Data Recording System
4.1 Recording equipment
4.2 Recording medium
4.3 Recording ability
4.4 Recording delay
4.5 Fault indication
4.6 Recording requirements
4.7 Erasing protection of recorded data
4.8 Function test
5 Performance specification for cockpit audio recording system
5.1 Recording equipment
5.2 Recording method
5.3 Recording ability
5.4 Method of obtaining record information
5.5 Recording delay and channel synchronization
5.6 Erase operation
5.7 Quality and reliability of records
5.8 Power interruption
5.9 Record evaluation

6 Performance Specifications of Airborne Video Recording System

6.1 Recording equipment

6.2 Recording requirements

6.3 Recording capacity

6.4 Recording delay

6.5 Image compression

6.6 Image security and encryption

6.7 Recording frequency

6.8 Mass erase

6.9 Optical characteristics of the lens

7 Performance specification of data link information recording system

7.1 Recording equipment

7.2 Recording requirements

7.3 Recording capacity

7.4 Data link information access

7.5 Recording delay

7.6 Data link applications and services

7.7 Record content

7.8 Time scale

7.9 Erasure of recorded data

Foreword

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

This standard was proposed by the Aviation Safety Office of the Civil Aviation Administration of China.

This standard was approved by the Aircraft Airworthiness Certification Department of the Civil Aviation Administration of China.

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

Drafting organization of this standard. China Civil Aviation Science and Technology Research Institute.

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Performance Specification for Small Aircraft Flight Recording System

1 Scope

This standard specifies the recording system that can record small aircraft flight data, cockpit audio, airborne video or data link information Minimum performance requirements.

This standard applies to the development, design, installation and use of small aircraft flight record systems.

2 Terms and definitions

Small aircraft

In accordance with "Small Aircraft Commercial Transport Operator Operation Certification Rules" (CCAR-135) and "General Operation and Flight Rules" (CCAR-91) Multi-engine airplanes, single-engine airplanes and maximum certified take-off weights not exceeding 5 700 kg in operation.

Rotorcraft over 3 180 kg.

Flight recorders

Installed inside an aircraft, used to record aircraft flight data, cockpit audio, airborne video or data link information to assist in accidents or incident investigation, and equipment with corresponding protection devices.

ADRS, aircraft data recording systems Collect and record airborne equipment or equipment groups that reflect the aircraft status, performance and other parameters. It can accurately record and describe aircraft status and Required parameters for pilot operations; at the same time, according to the complexity of the aircraft, the available data sources and the recording requirements of mandatory parameters If required, it can also record other non-mandatory parameters.

Cockpit audio recording systems CARS, cockpit audio recording systems Use microphones or other audio and digital inputs to collect and record various audio information in the cockpit, including land-air communications, crew calls, Airborne equipment or equipment group such as cockpit background sound.

Airborne image recording systems AIRS, airborne image recording systems Airborne equipment or equipment group that uses optical sensors to collect and record image information from different areas of the aircraft. It can record driving the images in the cabin include operating inputs, instrumentation and control panel information, and can also record images from outside the cabin.

DLRS, data-link recording systems the onboard equipment or equipment group that records the interactive message information transmitted by the data link.

3.1 Security requirements

The flight recorder should not impair the airworthiness of the aircraft, whether under normal or malfunctioning conditions. It should be ensured that the information source of the system interface is recorded. Critical flight systems are properly physically and electrically isolated.

3.2 Maintainability requirements

The flight recorder should be easy to maintain to ensure the availability and continued airworthiness of the flight recorder.

3.3 Flame retardancy requirements

In addition to a small amount of materials used for thermal isolation or heat dissipation (such as insulating paint, thermochemical compounds, etc.) and small components that will not significantly support combustion (Such as handles, fasteners, seals, gaskets and small electronic components), all materials should be flame-retardant materials.

3.4 Fallability requirements

To ensure that the accident investigation authority can read the information stored in the recording medium of the flight recorder through the special method provided by the recorder manufacturer Information, the flight recorder should meet and pass the following tests.

- a) Impact vibration test. The test sample is subjected to impact vibration test along 3 mutually perpendicular directions (six axial directions). Impact energy should be greater than or equal to the impact of half a sine wave (the duration is $5 \text{ ms} \pm 1 \text{ ms}$, the peak acceleration of the sine wave should not be less than $1,000 \text{ g}$, (g is the local gravitational acceleration); the trapezoidal shock wave with the same shock capacity can also be used for testing, and the shock pulse measurement should be Using calibrated accelerometers and related instruments, the accuracy requires at least a 3 dB response in the range of 5 Hz~250 Hz;
- b) Static extrusion test. A static pressure of 4.54 kN is applied to the test sample for a duration of 5 min. For spherical flight records it needs to test at least 4 times; for a cube-shaped flight recorder, a total of 7 tests are required, including 3 faces and 4 diagonals;
- c) High-temperature fire test. The heat flux generated by the fire source used for the test is at least 158 kw/m^2 . All external surfaces of the test sample (including Wires) should be exposed to the flame for at least 15 minutes, and the surface temperature of the flame is $1100 \text{ }^{\circ}\text{C}$ (the test sample may lead to as a result, the local flame is cooled, and the turbulence of the air flow will also affect the flame temperature. Therefore, the flame