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

MH/T 4037.2-2017

Replacing MH/T 4037-2013

**General technical requirements for multilateration systems.
Part 2: Wide area multilateration systems
(English Translation)**

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Foreword

MH/T 4037 "General Technical Requirements for Multipoint Positioning System" is divided into two parts.

--Part 1: Multi-point positioning system for airport surface;

--Part 2: Wide-area multi-point positioning system.

This part is part 2 of MH/T 4037.

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

This part and MH/T 4037.1 jointly replace and abolish MH/T 4037-2013 "General Technical Requirements for Multipoint Positioning Systems", and MH/T 4037-The main technical changes compared to 2013 are as follows.

-Revised the normative reference documents (see Chapter 2, Chapter 2 of the 2013 edition);

--Modified some terms and definitions, added definitions of "system capacity", "processing

delay", and "error detection", and deleted Definitions of "master station", "base station" and "geometric precision factor" (see 3.1, 2013 edition 3.1);

--Deleted the classification part (Chapter 4 of the 2013 edition);

-Modified the system composition (see 4.1, 2013 version 5.1);

-Modified the overall system requirements (see 4.2, 2013 edition 5.2);

-Modified system performance requirements (see 4.3, 2013 edition 5.3);

-Revise the technical requirements of "Master Station" to "Inquiry Station" (see 4.4, 2013 Edition 5.4);

-Revise the "base station" technical requirements to the "receiving station" technical requirements (see 4.5, 2013 edition 5.5);

--- Added technical requirements for testing transponder (see 4.6);

--- Added technical requirements for central processing stations (see 4.7);

-Modified the monitoring and maintenance part (see 4.8, 2013 edition 5.6);

--Modified the working environment part (see 4.9, 5.2.14 of the 2013 edition);

-Deleted the test system part (2013 version 5.7).

This part is proposed and explained by the Air Traffic Control Industry Management Office of the Civil Aviation Administration of China.

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

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

Drafting organization of this section. Technical Center of Air Traffic Management Bureau, Civil Aviation Administration of China.

1 Scope

This part of MH/T 4037 specifies the technical requirements for civil aviation wide-area multipoint positioning systems.

This part applies to the planning, design, development, construction, inspection and use of civil aviation wide-area multi-point positioning systems.

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.

GB/T 4208 Shell protection grade (IP code) MH/T 4010 Air Traffic Control Secondary Surveillance Radar System Technical Specification MH/T 4037.1 General Technical Requirements for Multipoint Positioning System Part 1: Airport Surface Multipoint Positioning System ICAO "Convention on International Civil Aviation" Annex 10 "Aeronautical Telecommunications"

3.1 Terms and definitions

The following terms and definitions defined in MH/T 4037.1 apply to this document.

3.1.1

Wide area multilateration systems Mainly adopt the time difference of arrival positioning technology, and determine the area and terminal (approach) by acquiring the signal transmitted by the secondary surveillance radar transponder and a group of equipment for the location and identification information of aircraft in the airspace controlled by the airport.

3.1.2

Target

An activated aircraft with a secondary surveillance radar transponder.

3.1.3

False detection

The detection target is a false target, or its position deviates from the true target position by more than 2 100 m under the control interval of 10 km in the area, or terminal (approach) Detection where the position deviates from the true target position by more than 1 690 m at a control interval of 6 km.

4.1 System composition

4.1.1

The system is mainly composed of an inquiry station, a receiving station, a test answering machine (optional), a central processing station, a monitoring and maintenance unit, and a communication transmission device.

Composition.

4.1.2

System communication transmission equipment should have the ability to support dual-network configuration and dual-network operation.

4.1.3

The receiving station, the interrogation station and the test answering machine shall support the redundant configuration of main and standby dual machines, and have the function of manual/automatic switching.

4.1.4

The central processing station shall adopt a redundant configuration of active and standby dual networks and dual computers, and have manual/automatic switching functions.

4.1.5

The hardware equipment of the central processing station host, switches, routers, etc. should adopt commercial shelf products.

4.1.6

The central processing station shall adopt a relatively mature operating system such as UNIX, LINUX, and WINDOWS.

4.2 General requirements

4.2.1

The system should meet the requirements of Volume IV of Annex 10 "Aeronautical Telecommunications" of ICAO "Convention on International Civil Aviation".

4.2.2

The system should have good scalability and be able to meet changes in the monitoring range of the system by adjusting the number and location of receiving stations and interrogating stations.

Demand.

4.2.3

The interconnection between the system LRU and the hardware in the system shall adopt a physical error-proof installation design.

4.2.4

The receiver and transmitter antenna feed unit and the inside of the machine should adopt lightning protection design.

4.2.5

The power-on, manual restart and automatic restart time of the central processing station shall be no more than 3 minutes, and the receiving station, interrogation station and test answering machine shall be turned on.

The time of machine, manual restart and automatic restart should not exceed 90 s. The