

ICS 33.060.20  
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**INDUSTRY STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**MH/T 4037.1-2017**

Replacing MH/T 4037-2013

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**General technical requirements for multilateration systems.  
Part 1: Aerodrome surface multilateration systems  
(English Translation)**

**Issued on: March 17, 2017**

**Implemented on: June 1, 2017**

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**Issued by: Civil Aviation Administration of China**

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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 1 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 4037.2 replace and abolish MH/T 4037-2013 "General Technical Requirements for Multi-point Positioning System", 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);

--Some terms and definitions have been revised, and "airport surface multi-point positioning

system", "mobile area", "system capacity", and "location the definitions of "processing time delay" and "error detection" are deleted, and the definitions of "master station", "base station", and "geometric precision factor" are deleted 3.1, 2013 version 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 the surface multi-point positioning system of civil aviation airports.

This part is applicable to the planning, design, development, construction, inspection and use of the multi-point positioning system for the civil aviation airport surface.

## 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

The following terms and definitions apply to this document.

#### 3.1.1

Aerodrome surface multilateration systems Mainly adopt the time difference of arrival positioning technology, and determine the position of the aircraft on the airport surface by acquiring the signal transmitted by the secondary surveillance radar transponder and identification information.

**Note:** For airport surface vehicles equipped with equivalent secondary surveillance radar transponders, this technology can also be used to determine vehicle location and identification information.

#### 3.1.2

Target

Aircraft and vehicles equipped with secondary surveillance radar transponder and activated or equivalent equipment.

#### 3.1.3

Manoeuvring area

Except for the apron, the area of the airport used for aircraft take-off, landing and taxiing.

#### 3.1.4

Time of arrival

The transmission time required for the target transmission signal to reach the receiving station in line-of-sight propagation mode.

#### 3.1.5

Time difference of arrival the difference between the arrival time of the signal transmitted by the same target.

#### 3.1.6

System capacity

The system can track and display the maximum number of targets simultaneously.

#### 3.1.7

##### Processing delay

The time from when the receiving station receives the target signal to when the system outputs the target report.

#### 3.1.8

##### False detection

The detection target is a false target or its position deviates from the real target position by more than 50 m.

#### 3.1.9

##### Line of sight

The way in which radio transmitting equipment and receiving equipment propagate signals through a direct path.

### 3.2 Abbreviations

The following abbreviations apply to this document.

### 4.1 System composition

#### 4.1.1

The system is mainly composed of interrogation station, receiving station, test answering machine, central processing station, monitoring and maintenance unit and communication transmission equipment.

#### 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.