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GB/T 39517.1-2020

Agricultural and forestry tractors and machinery. Agricultural positioning and navigation system testing procedures - Part 1: Dynamic testing of satellite positioning devices

Issued on: November 19, 2020 **Implemented on: March 1, 2021**

Issued by: State Administration for Market Regulation, China National Standardization Administration

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Foreword

GB/T 39517 "Agricultural and forestry tractors and machinery agricultural positioning and navigation system test procedures" is divided into the following two parts.

---Part 1.Dynamic test of satellite positioning device;

---Part 2.Testing of the satellite automatic navigation system in straight and horizontal operation.

This part is Part 1 of GB/T 39517.

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

This part uses the redrafting law to amend and adopt ISO 12188-1.2010 "Agricultural Tractor and Machinery Agricultural Positioning and Navigation System Measurement

Test Procedure Part 1.Dynamic Test of Satellite Positioning Device.

The technical differences between this part and ISO 12188-1.2010 and the reasons are as follows.

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--- Increase the scope of use of the "Beidou Satellite Navigation System (BDS)" to adapt to my country's technical conditions (see Chapter 1).

---The value of geographic reference a and b of the "Beidou satellite positioning system" has been increased to adapt to my country's technical conditions (see Appendix A).

This part was proposed by China Machinery Industry Federation.

This part is under the jurisdiction of the National Agricultural Machinery Standardization Technical Committee (SAC/TC201).

Drafting organizations of this section. Zoomlion Heavy Machinery Co., Ltd., Chinese Academy of Agricultural Mechanization Sciences, Henan Qinghong Technology Co., Ltd., He

South University of Science and Technology, Qianxun Location Network (Zhejiang) Co., Ltd., Shanghai Sinan Satellite Navigation Technology Co., Ltd., Taishan Intelligent Manufacturing Industry

Research Institute.

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1 Scope

This part of GB/T 39517 specifies the use of Beidou satellite navigation system (BDS), American GPS, GLONASS, Galileo

Or the accuracy assessment and reporting process of navigation data provided by positioning devices similar to the Global Navigation Satellite System (GNSS).

This section is suitable for testing the performance of field positioning devices, used to quantify and compare the conventional dynamic performance of different positioning devices.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1 Terms related to positioning device testing

2.1.1

Positioning means

A device that uses satellite navigation signals to determine and report the position of the receiving antenna center in the geographic coordinate system in real time.

2.1.2

Navigation data record

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Data report of geographic coordinates, altitude, heading, driving speed and other related navigation parameters calculated by PD.

2.1.3

Driving route

The predetermined travel trajectory during the test.

2.1.4

Reference navigation system

A fixture or measuring system that can accurately control the trajectory of the PD or record the actual driving trajectory of the PD.

2.1.5

Geographic coordinates

Latitude, longitude, and altitude in an internationally defined geodetic coordinate system.

2.1.6

Driving speed

The distance traveled per unit time.

Note. The driving speed is expressed in m/s.

2.1.7

Course over the ground

According to the NMEA0183 protocol, the horizontal projection direction of the driving trajectory measured in a clockwise direction based on the true north direction.

Note. The projection direction of the driving track is expressed in degrees.

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