INTERNATIONAL STANDARD

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Tractors and machinery for agriculture and forestry — Test procedures for positioning and guidance systems in agriculture —

Part 2: Testing of satellite-based auto-guidance systems during straight and level travel

Tracteurs et matériels agricoles et forestiers — Modes opératoires d'essai des systèmes de positionnement et de guidage utilisés en agriculture —

Partie 2: Essai des systèmes d'autoguidage satellitaires lors de déplacements droits et horizontaux

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12188-2 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 19, *Agricultural electronics*.

ISO 12188 consists of the following parts, under the general title *Tractors and machinery for agriculture and forestry — Test procedures for positioning and guidance systems in agriculture*:

— *Part 1: Dynamic testing of satellite-based positioning devices*

— *Part 2: Testing of satellite-based auto-guidance systems during straight and level travel*

Introduction

This part of ISO 12188 provides detailed information for the dynamic testing of satellite based positioning devices or complex navigation systems (automatic steering systems) used in agriculture. The dynamic testing relies on metering geographic positioning quality when tested devices and systems are in motion resembling their use in agriculture. Various professionals need comparable and detailed information on the behaviour of such systems based on standardised test procedures. Potential users include developers and manufacturers of agricultural equipment and positioning or navigation components as well as farmers or other end users.

Tractors and machinery for agriculture and forestry — Test procedures for positioning and guidance systems in agriculture —

Part 2: Testing of satellite-based auto-guidance systems during straight and level travel

1 Scope

This part of the ISO 12188 specifies the process for evaluating and reporting the performance of agricultural vehicles equipped with automated guidance systems (AGS) based on a global navigation satellite system (GNSS) when operating in an automatic steering mode.

The main performance criterion is the lateral deviation of a representative point on the vehicle from a desired trajectory for that point. This performance criterion integrates the uncertainties associated with the performance of all components of the vehicle guidance system including the positioning device(s), automated steering components, and vehicle mechanisms and dynamics.

This part of ISO 12188 focuses on steady-state tracking performance of the automated guidance system while travelling on straight paths over a level surface.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1 General terms

2.1.1
positioning device
PD
instrument that is capable of determining and reporting the position of its antenna center point in geographic coordinates and in real time using satellite-based radio-navigation signals

2.1.2
differential correction
means of accounting for predictable geographic positioning errors in real time

2.1.3
automatically guided vehicle system
AGVS
AGS-equipped agricultural vehicle

2.1.4
representative vehicle point
RVP
fixed point relative to a vehicle or implement used to represent the location of the AGVS

2.1.5
test course
repeatable route of travel comprised of one or more test course segments typical of an agricultural field operation