ASABE/ISO 12188-2:2012 OCT2015

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

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ASABE/ISO 12188-2:2012 OCT2015
Approved October 2015 as an American National Standard

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This standard was reviewed for adoption by the ASABE Machinery Systems Precision Agriculture and Agricultural Electronics committees. Adopted by ASABE and approved as an American National Standard October 2015.

Keywords: Accuracy, Auto-guidance, GNSS, Test

0 Foreword

0.1 ASABE/ISO 12188-2:2012, 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, is an adoption without modification of the identically titled ISO standard ISO 12188-2:2012, 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

0.2 This standard 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.

0.3 There are no normative references in ISO 12188-2:2012.

0.4 This standard has been approved as an American National standard by ANSI (American National Standards Institute). The original content of ISO 12188-2:2012 was based on ASABE copyright document X605 Satellite-Based Auto-Guidance Systems Testing During Straight and Level Travel.

Text of ISO 12188-2:2012, 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, follows.

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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.

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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

2.1.6
test course segment
clearly defined continuous part of the test course that is used to estimate tracking errors of the AGVS

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