

Service ID S00070

Location France



ARPA 3 - Qualification of safety functions ensuring robots keep within th

Provider service

INRAE

Link to content

<https://agrifoodtef.eu/catalogue-of-services/arpa-3-qualification-safety-functions-ensuring-robots-keep-within-their>

Type of Sector

Arable farming, Greenhouse, Horticulture, Livestock farming, Tree Crops, Viticulture

Accepted type of products

Design / Documentation, Physical system, Other

Type of service

Collection of test data, Performance evaluation, Provision of datasets, Test design, Test execution, Test setup

Description

This service evaluates the effectiveness of onboard geofencing safety systems in agricultural robots, ensuring they stay within designated work areas as required by ISO 18497:2024. The test involves the robot following various trajectories that challenge boundary limits. High-precision monitoring ensures compliance, with the robot required to enter a safe state if it breaches the boundary. A manufacturer's representative must be present to oversee the process.

How can the service help you

ARPA3 service helps customers ensure that their agricultural robots reliably respect defined work boundaries, preventing unintended exits from the designated area and enhancing operational safety.

Before service, customers may be concerned about possible exits from the work area and the associated safety risks. After the tests, they receive a detailed report on the robot's performance while respecting the integrity of an assigned work area, eliminating uncertainty, and confirming safety in the field.

The final test report is prepared and reviewed by the test operator. This document belongs exclusively to the customer, satisfying the need for verified safety compliance and unbiased operational confidence.

How the service will be delivered

The ARPA3 test can be customised to focus on specific safety features manufacturers wish to evaluate. These features are jointly established before testing. However, the tests determine the robot's ability to respect a designed working area.

Some limitations exist, such as the need for a manufacturer's technical representative to be present during the test and the requirement to provide technical manuals in advance. In addition, conducting the tests during the winter may not be possible, so customers should plan accordingly.

Service customisation

Testing is available year-round, with possible restrictions during the winter season due to soil and weather conditions. Each test lasts approximately three days, depending on the conditions established during the technical meeting, and is carried out on the premises of INRAE - Montoldre - AgroTechnoPôle in France (just two hours from Lyon).

The manufacturer's representative will be involved throughout the process to ensure accurate testing and validation. The robot's technical and user manuals must be submitted in advance. Customers will receive a detailed technical report on the test. This service is aimed at manufacturers of agricultural robots and safety systems.