

**Service ID**

**Location** Sweden



## Test of 4G/5G-connected equipment

### Provider service

AstaZero, RISE - Research Institutes of Sweden

### Link to content

<https://www.agrifoodtef.eu/services/test-4g5g-connected-equipment>

### Type of Sector

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

### Accepted type of products

Physical system

### Type of service

Performance evaluation, Test design, Test execution, Test setup

### Description

Many agricultural products (robots, tractors, or other devices) are connected to external systems through a telecom link (4G/5G). Some products may even depend on a connection of good quality. But even if the connectivity conditions are good in most areas, the product will likely experience various problems over time. In this service you can test how your connected product is affected by a number of connectivity issues. With our expertise and equipment, your product is exposed to well-defined communication disturbances in test cases that are designed to mimic the same kind of problems that can occur in real field operations. The tests include: - Variable attenuation of the received/transmitted RF signal of the vehicle - Injection of disturbances such as o Packet Delay o Packet Loss o Packet Corruption o Packet Duplication o Packet Reordering - Border crossing and roaming tests - Setup and testing of newer 3GPP features such as 5G Slicing.

## **How can the service help you**

This service helps a developer to understand what connectivity challenges the product may experience in field operations. As the product is exposed to a set of connectivity disturbances, a developer can evaluate which countermeasure implementations work best to keep the product reliable and safe. Thus, maximising uptime by ensuring that the product still performs predictably even if there are communication disturbances.

## **How the service will be delivered**

This service is mainly targeting automated machinery such as self-driving tractors or drones but can also be applied to other equipment that uses 4G/5G communication.

## **Service customisation**

Parts of the service are mobile and can be performed as a field test. The exceptions are tests of border crossing and 3GPP functionalities, which need to be executed at the AstaZero test track in Sweden. Installation of test equipment on the product is required.