

SDR-Based GPS Simulator for Spoofing Vulnerability Testing

Easy-to-use solution not requiring advanced GNSS knowledge. Supports live sky and over-the-air spoofing



Key Features

We developed this application to research various GNSS spoofing scenarios and to test techniques for detecting deliberate precision attacks. The simulator enables live over-the-air operations and flexible manipulation of coordinates and timing. It is a perfect solution for cybersecurity experts to test time servers, drones, and self-driving vehicles.



Live Sky Spoofing

Real-world spoofing attacks would not take place under lab conditions! GP-Simulator enables testing in realistic live sky environment.



Over-the-Air Testing

The app makes it easy to configure the signal transmission over the air. It takes into account the parameters of TX/RX antennas, RF amplifiers, cables and the distance to the device under test. Great option for drone testing.



Coherent Spoofing Scenario

At the first step of synchronous (coherent) spoofing, the fake signal is completely identical to the real one. The attacked receiver immediately switches to the fake signal without loss of tracking.



Time or Coordinates Manipulation

The application enables real-time manipulation of timestamp, PPS phase, coordinates, and individual satellite parameters. Distortions can be applied to simulate the behavior of real signals.



True Almanac and Ephemeris

GP-Simulator utilizes genuine almanac and ephemeris files from NASA websites. This ensures a successful attack on a receiver with basic spoofing protection algorithms.



Easy-to-Use Solution

The solution is designed for cybersecurity specialists without relevant GNSS knowledge. GPSPATRON team provides online training on testing the vulnerability of GNSS receivers, time servers, drones, RTK base stations.



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