

# GNSS Quality Assurance

**OH B Digital Solutions GmbH** provides services for quality assurance for your GNSS data.

If you have a need for an effective quality assurance system for GNSS-based positioning, navigation or timing services (maritime control, time-synchronised networks, deployment systems, ...) these services are indispensable.

Many applications, systems and users rely on GNSS (GPS, Galileo, GLONASS,...) signals. GNSS failures or distorted GNSS signals can cause severe problems.

**OH B Digital Solutions** is capable of detecting problems of such kind (and beyond that) and thereby facilitates appropriate customer reactions.

In concrete terms problems of such kind can be avoided and / or brought under control more quickly by

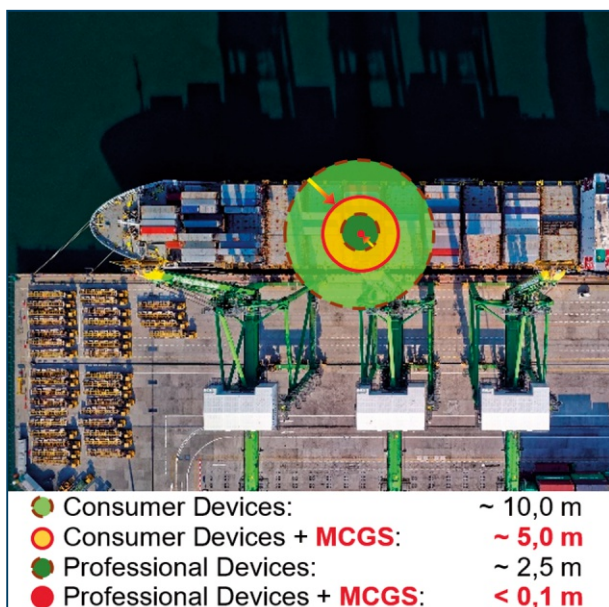
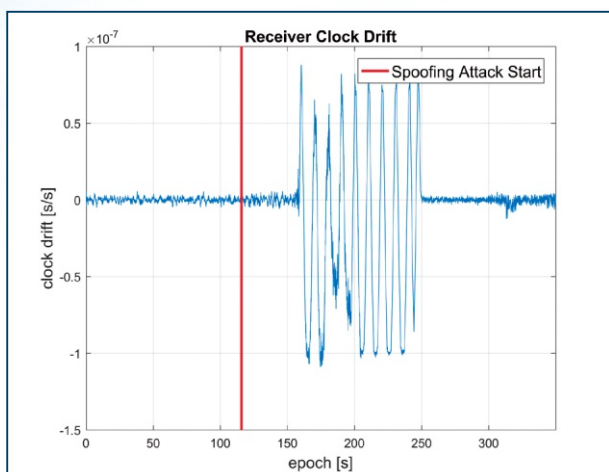
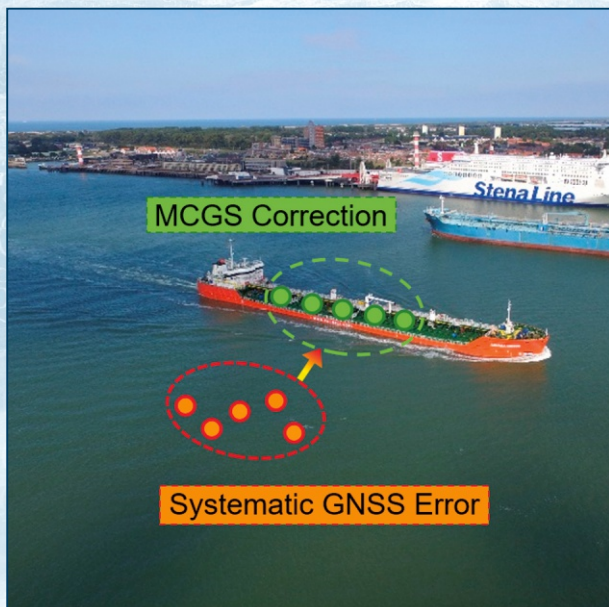
- Sweeping receiver tests beforehand
- Deployment of relevant GNSS-monitorings





# GNSS

## Quality Assurance



Services for quality assurance of your GNSS data provided by **OHB Digital Solutions GmbH** comprise efficient system implementation based on a multi-stage model, which is specifically tailored to the respective customer application and user needs.

Our initial approach is to identify the potential risk and contingent implications. Part of this stage is the thorough testing of GNSS re-ceivers and the corresponding documentation by means of the **GIPSIE – GNSS Multisystem Performance Simulation Environment**. The result of this activity is a detailed understanding on the performance of specific GNSS receivers under well-defined circumstances at the customer site.

Based on this findings, **OHB Digital Solutions** can implement a real time GNSS interference monitoring (**GIDAS – GNSS Interference Detection & Analysis System**) for comprehensive GNSS quality assurance. This monitoring reliably detects, classifies and localizes jamming and spoofing attacks, generates automatic reports, sends alert messages and facilitates a detailed analysis in postprocessing.

The so installed GNSS quality assurance system enables users to monitor GNSS measurements and raw data (IF signal) as well as test quality, authenticity and performance of GNSS signals in real time. This can be used by the customer to take appropriate measures.

Every GNSS user can achieve higher position accuracy with the **MCGS – Multipurpose Cooperative GNSS Service** without having to invest in high-end equipment or cost-intensive infrastructure. Efficient data management and cloudcomputing are significant performance features of **MCGS**, whereby the system can be adapted tailor-made for individual requirements.

By means of a signal splitter a low-cost receiver apt for raw data is attached to the concerned receiver. The raw data are transmitted via PC to **MCGS**.

Thereby the following observation variables can be monitored by means of **MCGS** in real time:

- Examination of raw measurement data (i.e. pseudoranges, doppler, phases) regarding aberrations (e.g. leaps, distortions, severe bugs)
- Recalculation of the position with measurement data and external navigation data (i.e. ephemerids and information on corrections by EDAS, IGS, etc.)
- Detection and monitoring of leaps in the receiver

### Additional options:

- Detection of cycle slips within phase measurements
- Monitoring of C/N0 and / or signal-to-noise ratio
- Correlation of receiving navigation message (on Bit-level) with reference data
- Recalculation of corrections and comparison with external data (e.g. orbit parameters, corrections of satellite clock, atmospheric corrections, etc.)
- Monitoring of status flags and integrity parameters