Kinematic Measurement Systems
Summer Semester 2018

IIG

Lab 4 *(Team Laboratory)*

Group:___

Kinematic GNSS Measurements

Date of first submission:

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Number	First name	Last name	Student ID	Signature
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Testat	1. control	Resubmission until	2. Control

1   Task

The task of this lab is to perform test drives with different GNSS receivers and to discuss and compare their characteristics. Therefore two receivers will be used. One receiver is a modern high-end device **Leica Viva GS15**. It will be connected to SAPOS Network and operate in a Real-Time-Kinematic mode (RTK). The positioning solution is based on carrier phase observations. The second device is a low-cost receiver **Ublox**. This system uses the code solution for the positioning. Both antennas will be mounted on the roof of the IIGS bus and will be connected to the appropriate receivers. The collected data from phase and code solution should be compared under aspects of accuracy and reliability. The distance between the two antennas will be measured exactly in advance and introduced as "reference baseline".

The test drives take place on the "Cannstatter Wasen" at a specified given date.

2   Elaboration

One member of each group has to join the test drives with the IIGS bus on the "Cannstatter Wasen". One member of each group has to do the data readout after the test drives. The collected data should be processed as follows:

- Calculation of the distance between the two antennas on the bus' roof.
- Comparison of the calculated distances between the antennas with the "reference baseline". The differences for each epoch have to be depicted in a figure.
- Plot of the driven trajectories for both GNSS receivers. (Please choose an appropriate coordinate system.)
- Calculation of the velocities for both receivers and their representation in figures.
- Plot of height differences between the two receivers.
- Discussion of the results under following aspects:
    - Accuracies of code solution
    - Accuracies of phase solution
    - Data acquisition in shadowing areas

3   Remarks

One elaboration per group has to be submitted.
Each group has to load up the created evaluation program to ILIAS.