

Absolute phase center calibration of low-cost GNSS patch antennas

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Kuka KR6 R900 six-axis industrial robot

- Absolute position accuracy: 0.1 mm RMSE

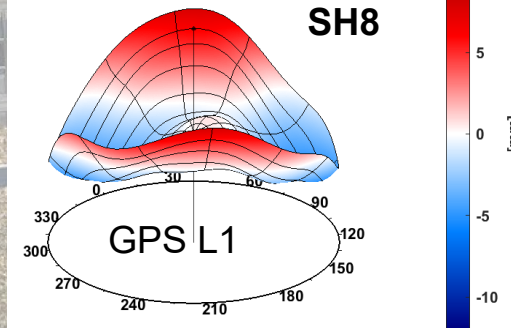


Antenna
Reference
Point (ARP)



Mounting system

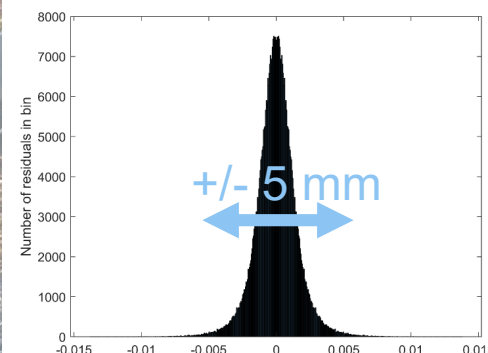
Phase Center Variations [mm]



Phase Center Offsets [mm]

North	East	Up
-11.3	-1.1	-13.6

Phase residuals [m]



Control system

GNSS reference antenna

Basic facts:

- Calibrated antennas: **u-blox** ANN-MB; **taoglas** GPSF.36.7.A and GGSFTP.50.7
- Rotation sequence: 2160 orientations
- Calibration method: **Triple-differences**
- Spherical harmonics parametrization **SH8**
- PCC **repeatability** (system error): **0.7 mm**
- Individual- vs. **type-calibration**: **< 1.0 mm**
- 60 cm baseline test: **1.2 cm bias reduction**