

Evaluation of the Accuracy and Performance of GPS/GNSS Antennas

Atınç Pırtı, Ercenk Ata and Ramazan Gürsel Hoşbaş (Turkey)

Key words: Engineering survey; GNSS/GPS; Positioning; GPS/GNSS antenna performance; height determination, vertical replacement; accuracy

SUMMARY

The antenna type and its specifications are significant factors for precise positioning and height determination in GPS/GNSS. The size and shape are very important, as these characteristics govern the ability of the antenna to pick up the GPS/GNSS signals. There are various antennas designed for different geodetic applications. This paper covers a few aspects of the science of GPS/GNSS antenna design and performance, as well as a few important considerations to take into account when using them in the field. Today, GPS/GNSS heightening is considered as an alternative to classical terrestrial height measuring methods. The aim of this study is to evaluate the affects of the GPS/GNSS antenna as to determine height component accuracy under different scenarios created to perform the survey performance. For this purpose, on the ground of accuracy analysis of long term experimental measurements in a testing network and other localities an optimized measuring technology for GPS/GNSS height differences determination is designed and successfully tested. Moreover, the investigation of vertical GPS/GNSS accuracy by using the different antennas by means of changing with antenna height is included in the concept of this study.