

Looking for the ideal combination distance – resolution with regard to the desired level of detail in laser scanning

Although laser scanning found its way to the land surveying world for quite some time now, there are still uncertainties concerning the accuracies and the level of detail that can be obtained. Both accuracy and level of detail are dependent on a lot of variables such as the type of laser scanner (phase or pulse based), the distance between the object and the laser scanner, the incidence angle of the laser beam, the spot size, etc. Due to this vast amount of influencing parameters, making general statements about accuracy and level of detail is difficult and not always accurate.

The research at hand starts from a real life situation in which an object is scanned from varying distances. For each distance the object is scanned several times with varying resolutions. The object consists of a combination of geometrical elements of variable shape and size. The scanner used was a pulse scanner (Leica C10 scan station).

Based on the research results the ideal combination distance – resolution with regard to the desired level of detail can be determined for this type of scanner.