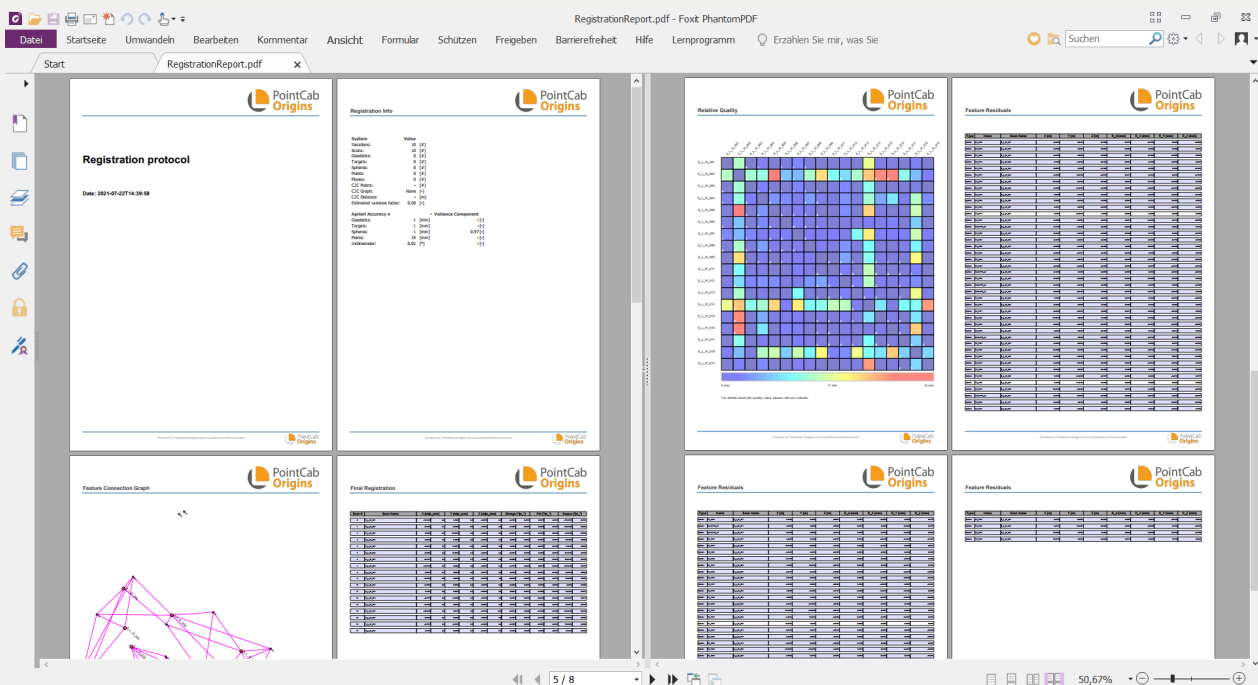# PDF Report

In the registration report you will find detailed information about the calculated registration with accuracy information, a visualization of the feature graph, a detailed list of observations with residuals, and an accuracy analysis of the relative accuracy between scans (see Quality Matrix).

On the second page of the report we see the information about our project: how many scans our project contains, how many features were found, the apriori accuracy we set for each type of features before registering.

On the third page of the report we can see the connection graph, which shows how all our scans are connected and by which features. This is also a good overview of the distribution of scans and features in the project.

The next page in the report shows the final registration with the positions of each scan in each direction. The next page shows the quality of the registration in our project in the form of a matrix.

The quality matrix visualizes the relative accuracy between two scans considering the full relative accuracy calculated by the geodetic registration. Since the relative accuracy of two scans depends on the accuracy of the 6 parameters of relative position (XYZ) as well as rotation (OPK), we calculate a simple quality measure which we explain below.

Suppose you want to compute a distance between a point A from scan A and a point B from scan B. The distance between the points A and B is the same. It is easy to see that the accuracy of the distance measurement depends on the single point accuracy of each point, as well as the relative accuracy of scan B to scan A.

We first calculate the relative accuracy of scan B to the „fixed scan A" by error propagation. Since the accuracies are different for all points in scan B, we use a representative point (see sketch). For this point we again calculate the accuracy by error propagation and use the maximum value of the calculated uncertainty from the three components XYZ.
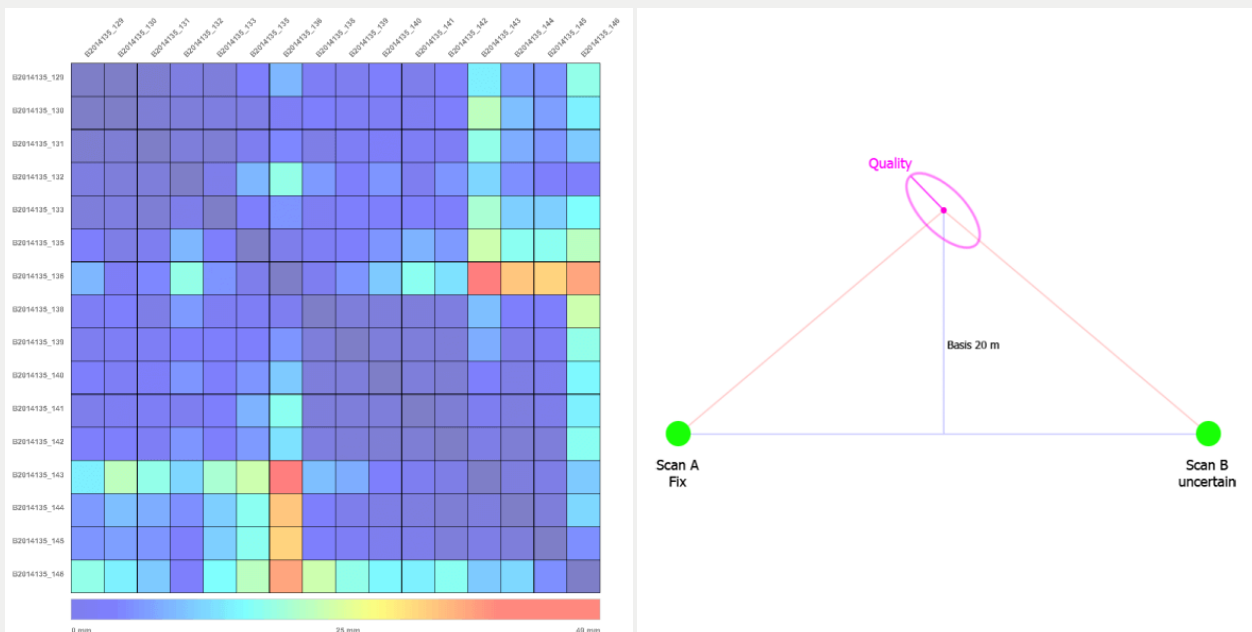
Furthermore, on the next pages the residuals of each feature are presented in a table and you can use this information to optimize the registration result by deactivating the features with the highest residual values, if possible, and recalculating the registration without the features.