



Arizona Optical Metrology

Morpheus™
CGH Data Reduction Software

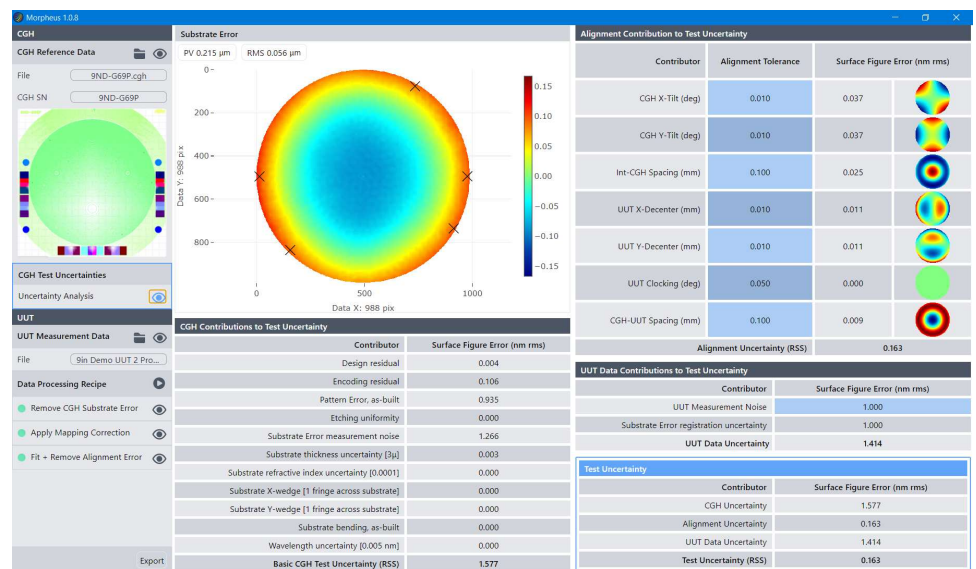
Morpheus™ software from AOM enables CGH test uncertainty analysis and data reduction for measurement maps providing high-confidence results for use in deterministic polishing or machining of optics. Key software functionality includes:

- ▶ Comprehensive analysis of CGH design residuals, as-built CGH attributes, test geometry, and user-specified alignment tolerances and measurement noise to quantify total test uncertainty
- ▶ Compensation for as-built CGH substrate variations
- ▶ Mapping correction to accurately locate measured surface figure errors in the lateral coordinates of the unit under test (UUT)
- ▶ Analysis and removal of measurement errors due to mis-alignment of the UUT in the CGH test

Test Uncertainty Analysis

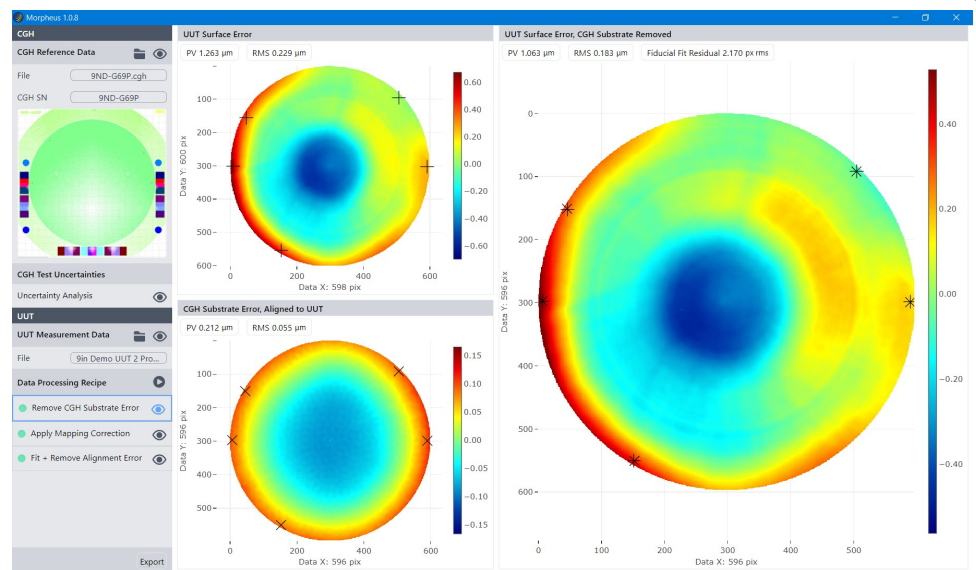
Analyze the total uncertainty stack up of as-built CGH parameters, design residuals, and test geometry uncertainty.

Incorporate user-specified alignment tolerances and measurement noise to estimate total test uncertainty before taking any data.



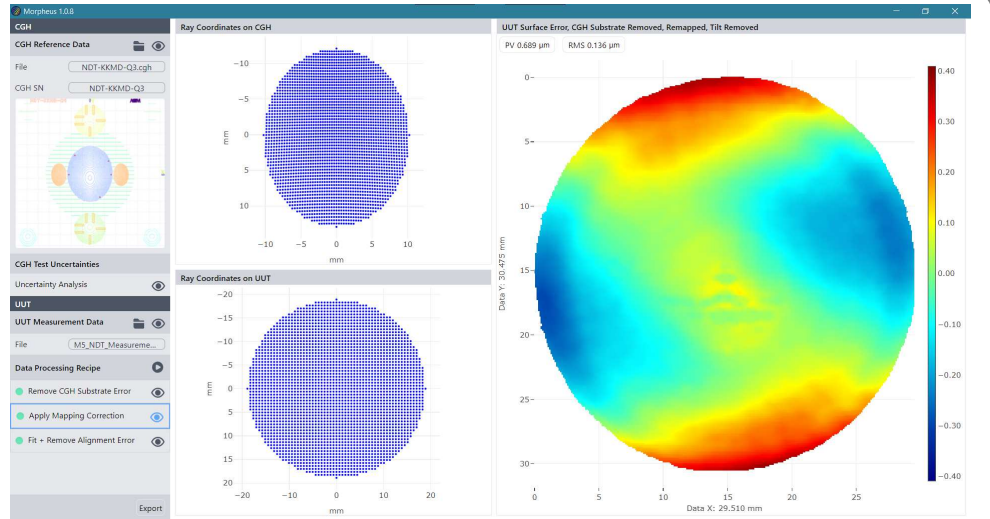
CGH Substrate Error Compensation

Remove the transmitted wavefront error contribution by the CGH substrate from your measurement, reducing measurement uncertainty.



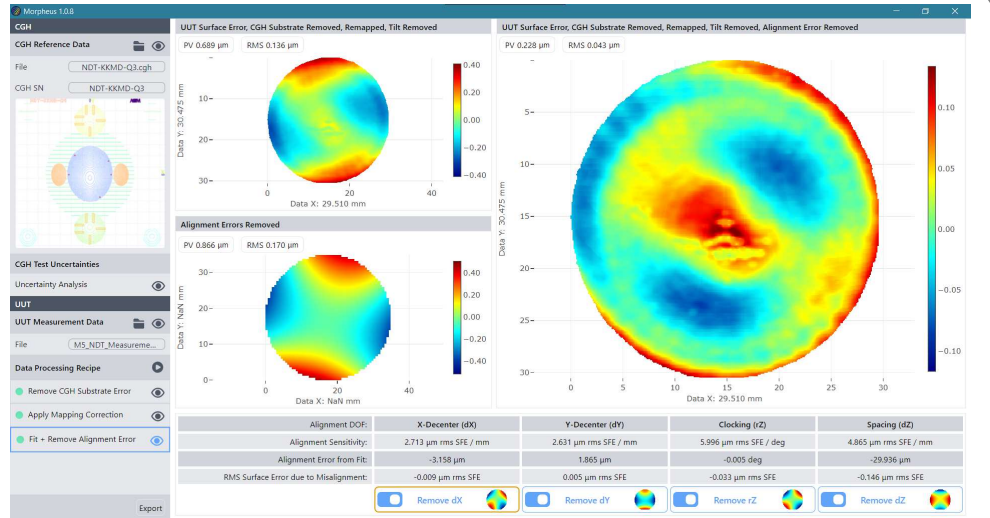
Data Mapping Correction

Convert CGH measurement data to the coordinate frame of the test optic, enabling accurate feedback for deterministic polishing processes.



Alignment Error Analysis

Automatically analyze and remove error contributions due to mis-alignment in CGH tests, enabling fast convergence on real surface figure for optical surface generation.



How It Works

- ▶ Morpheus™ software is free to download! Explore the capabilities and features with the included sample data sets
- ▶ Each custom CGH can include an optional “digital twin” CGH file (.cgh) which contains all data required to process CGH test measurement data – substrate calibration, mapping relations, alignment mode sensitivities, and uncertainty analysis functions.
- ▶ Ask your AOM representative to include the optional .cgh file with your next CGH purchase!

