

Form measurements in an industrial CT scanner investigated using a polymer step gauge - DTU Orbit (08/11/2017)

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Computed Tomography (CT) is a promising technology for both geometrical measurements and form measurements. However, a number of influence factors such as magnification, threshold determination strategies, and position of feature in the CT volume, have effect on the CT measurement performance. The present investigation concerns the measurement of flatness at different positions in the CT measurement volume using a milled miniature step gauge. The artifact is a 42 mm long step gauge with 11 grooves at 2 mm steps, made of polyphenylene sulphide PPS ($\rho = 1.650 \text{ g/cm}^3$), with limited form error and good surface finish. A total of 132 flatness measurements were performed on the left step gauge grooves. The linear distribution of the grooves pointed out a non-uniform CT performance over the step gauge length with max deviation up to 25 μm . However, an appropriate choice of parameters yielded a reduction of the max deviation along the step gauge length by approximately 13 μm .

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