

# Standard method for microCT-based additive manufacturing quality control 3: surface roughness

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## Abstract

The use of microCT of 10 mm coupon samples produced by AM has the potential to provide useful information of mean density and detailed porosity information of the interior of the samples. In addition, the same scan data can be used to provide surface roughness analysis of the as-built surfaces of the same coupon samples. This can be used to compare process parameters or new materials. While surface roughness is traditionally done using tactile probes or with non-contact interferometric techniques, the complex surfaces in AM are sometimes difficult to access and may be very rough, with undercuts and may be difficult to accurately measure using traditional techniques which are meant for smoother surfaces. This standard workflow demonstrates on a coupon sample how to acquire surface roughness results, and compares the results from roughly the same area of the same sample with tactile probe results. The same principle can be applied to more complex parts, keeping in mind the resolution limit vs sample size of microCT.

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