# THE ROLE OF THE INCREASING GEOMETRY PRECISION FOR SAWLOG QUALITY GRADING

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## ABSTRACT

This paper is focused on the possibilities of using geometry obtained by CT scanning to improve the quality assessment of sawlogs. This study is the initial part of the author's research in qualitative log sorting. The selected 60 Norway spruce sawlogs were measured manually according to the valid standards in the Czech Republic and then scanned using a CT.LOG X-ray computed tomography scanner (MiCROTEC, Bressanone, Italy). Based on CT scan reconstruction, the average wood density was determined to be 687.9 kg/m$^3$ at a moisture content of 60.6%. When comparing methods of manual measurement and computed tomography, a slightly stronger relationship was found between density based on computed tomography and wood moisture content, with a Pearson correlation coefficient of $r = 0.7195$. The tests performed confirmed a statistically significant difference between the volume determined by manual measurement and by computed tomography. Obtained volumes are input in follow-up studies when correcting the parameters received from acoustic non-destructive testing. The results proved the high accuracy of the CT scans, which allows improvement in the quality assessment of sawlogs.

**Keywords:** CT scanning, non-destructive techniques, acoustic methods, volume reconstruction.