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# Implementation of the Laser Tracer in the High Value Manufacturing Industry

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# Implementation of the Laser Tracer in the High Value Manufacturing Industry

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## Abstract

Rising demand within high value manufacturing industries for improved efficiency is driving a requirement for increased accuracy of parts and assemblies over large volumes. Structural assemblies are being defined with tighter tolerances as to satisfy the demand for improved performance which is placing increasing measures upon metrology systems. Measurement over large volumes often relies upon the use of reference networks which are used to locate instruments within a known datum structure. An increase in accuracy of reference networks would lead to a reduction of in-process uncertainty as a reference network currently consumes a large portion of the uncertainty budget when dealing with tight tolerances over large volumes. This has led the University of Bath to develop novel methods for creating high accuracy reference networks to enhance large volume measurement by reducing the uncertainty of reference networks. A method for the use of high accuracy multi-station interferometers using multi-lateration has been developed for comparison against the current industrial gold standard of using laser trackers.

(Multi-lateration software has been proven within the physical and digital domain, further tests are being conducted at present to compare the laser tracer with the laser tracker - further details will be reported within full conference paper)