Abstract Submittal Form

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Additive manufacturing is a rapid prototyping technology that allows parts to be built in a series of thin layers from plastic, ceramics, and metallics. Metallic additive manufacturing is an emerging form of rapid prototyping that allows complex structures to be built using various metallic powders. Significant time and cost savings have also been observed using the metallic additive manufacturing compared with traditional techniques.

Development of the metallic additive manufacturing technology has advanced significantly over the last decade, although many of the techniques to inspect parts made from these processes have not advanced significantly or have limitations. Several external geometry inspection techniques exist such as Coordinate Measurement Machines (CMM), Laser Scanners, Structured Light Scanning Systems, or even traditional calipers and gages. All of the aforementioned techniques are limited to external geometry and contours or must use a contact probe to inspect limited internal dimensions.

This presentation will document the development of a process for real-time dimensional inspection technique and digital quality record of the additive manufacturing process using Infrared camera imaging and processing techniques.