

# **Remote Visual Inspection (RVI) Measurement Technology: Advancements in RVI Image Capture and Processing and New Fully Surfaced 3D Point Cloud Based Measurement Techniques**

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While videoscopes are critically important to Inspectors in the NDT industry, the full potential of Remote Visual Inspection (RVI) remains hampered by a lack of awareness and proper use of the current generation RVI equipment containing high-definition (HD) imaging technology, advanced image processing capabilities, as well as automated remote measurement techniques. The current state of the art in RVI measurement technology offers highly intuitive user interfaces which can apply color masking functions to a Fully Surfaced 3D Measurement point cloud. Recent advances now allow users to directly interact with the point-cloud measurement features including direct cursor manipulation and gesture-based pinch-and zoom functionality. Because the videoscope now has access to a full 3D XYZ representation of a target indication, new measurement techniques were able to be developed to allow measurement of missing material through a projected plane technique, as well as a series of automated depth / height measurements where the min/max location of a point is automatically calculated and presented on screen- such as finding the deepest point in a field of corrosion pits or FOD impact depth on a turbine blade. Image acquisition and on-screen visualization is also enhanced through the use of mega-pixel HD image sensors, image processing techniques which provide increased clarity of target indications through zoned image brightness controls, noise reduction techniques, and High Dynamic Range (HDR) image processing. Recent advancements in RVI technology can provide increased Probability of Detection (POD) of indications, more accurate and precise remote measurements, and the avoidance of lost time due to the need for re-measurements, consulting with a remote Subject Matter Expert (SME), or taking an asset out of service due to bad calls. Through a series of technical use cases and animated measurement examples, this session will demonstrate the technical advantages of the latest RVI technology and describe the value to the user by providing more accurate results while reducing costs, greatly enhancing POD, while increasing the safety of asset operation.