A Novel Approach for Rapid Eddy Current Imaging of Flaws

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Traditionally raster scan plan is employed in eddy current testing for imaging flaws in components. Several parallel scans using a single probe are made and the acquired data is represented in the form an image to obtain, e.g. a comprehensive picture of a flaw in the imaged region. For imaging on large surfaces time for imaging is a constraint. We present a novel probe scan plan for rapid eddy current imaging of flaws. We demonstrate the performance of this scan plan in austenitic stainless steel plates for detection of flaws using a pancake type eddy current probe. We then compare its performance with the traditional raster scan plan and other types of scan plans based on rapidness, area coverage, POD, and step size for detection of 1000 randomly located notches in a stainless steel plate. Studies reveal that the proposed scan plan outperforms the other scan plans with single probe for rapid and reliable inspection of large surfaces of electrically conducting materials.