

Characterization of Rigid and Flexible Digital Detector Arrays Using ASTM E2597/E2597M-22

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ASTM E2597/E2597M-22 is a standard that summarizes a standard practice for characterization of digital detector arrays (DDAs) by manufacturers. The standard consists of a series of tests intended to deliver quantitative results for a given model of detector's characteristics as they should perform upon sale. It was written for use in characterizing rigid detectors, but the tests are applicable to bendable DDAs, utilized for single viewing. Bendable DDAs, unlike their rigid counterparts, are made to conform around parts being inspected, such as pipes, in a similar application to film and computed radiography for imaging curved objects. As bendable DDAs are made using the same scintillators as flat panel DDAs and have similar pixel pitch and resolution capabilities, it is expected that the results from most characterization tests should be similar. Conformable DDAs produce similar imaging results as rigid DDAs but have the flexibility of use for curved surfaces, they offer a valuable tool for customers currently using film and CR who are looking to expedite their inspections or move away from use of consumable products. We performed these characterization procedures on Carestream conformable DDA HPX-ARC models and rigid DDA HPX-DR models utilizing Carestream's INDUSTREX software. The experiment results are presented as part of this paper.