AbstractID: 7330 Title: Evaluation of Dose Saving Utilizing AGFA"s DirectiX Neddle Based Detector

Purpose: To evaluate the impact of dose reduction on image quality utilizing AGFA's new DirectriX needle-based detector and scanhead technology versus AGFA's MD 4.0 PSP detector and Compact plus ADC.

Method and Materials: The ACR R/F phantom was utilized for image quality evaluations. The phantom was imaged using manual techniques on both the DirectriX needle-based detector system and the MD 4.0 PSP system. The same GE Proteus XR/a x-ray system was utilized for all exposures. The image quality was quantified based on human observation of the copper mesh resolution patterns, contrast detail pattern and aluminum contrast holes. A total of 5 observers accessed and scored the phantom images. Phantom images were obtained on multiple plates and the results were averaged for the observers

Results: Evaluation of the phantom scores indicates that comparable image quality can be achieved at a 60% decrease in dose. Evaluation of the phantom scores also indicates image quality gains if dose levels are held constant.

Conclusion: This work indicates the potential for significant dose reduction for general radiography utilizing the DirectriX needle-based detector. The works also indicates a potential for significant image quality gains if dose rates are kept constant.