

## AbstractID: 1521 Title: Image Quality and Dosimetric Evaluation of a New Flat Panel Detector Cardiac Catheterization Lab

The imaging characteristics and entrance radiation dose were evaluated on a 25 cm diagonal flat panel detector from Philips Medical Systems (model Integra Allura 9). The detector is comprised of a structured CsI phosphor followed by an amorphous silicon photodiode and TFT reading arrays. The imaging characteristics were evaluated using a NEMA Standard XR-21 2000 Fluoroscopy Benchmarking Phantom. The imaging characteristics evaluated were static spatial resolution, iodine detectability, dynamic range, moving wire detectability and system lag. The NEMA phantom has a total of 32 iodine, 8 dynamic range and 5 wire targets. These tests were performed in fluoroscopy and acquisition modes for three fields of view, three fluoroscopy dose modes and three patient thickness settings for acquisition. Further evaluation of static resolution, iodine detectability and phantom entrance exposure were performed in fluoroscopy with PMMA phantom thicknesses varying from 10cm to 35cm. The following results are for the normal dose mode in both fluoroscopy and acquisition and the 18 cm field of view. The results are listed for fluoroscopy/acquisition modes respectively. For the NEMA XR-21 20cm phantom the static resolution was 2.8/2.8 line pairs/mm, iodine visibility was 14/18 targets, dynamic range was 5/5, moving wire visibility was 3.5/4, system lag was 2/1 dots visible and entrance exposure was  $10.5 \times 10^{-4} / 135 \times 10^{-4}$  C/kg/min. Results for all dose modes, field-of-views and phantom thicknesses are presented. The system provides excellent image quality. These measurements may provide valuable information for comparing the image quality and radiation dose to other imaging systems.