

AbstractID: 1224 Title: A Comparison Between Two Cone-Beam Computed Tomography Systems.

Two cone-beam computed tomography (CBCT) systems have been installed and characterized at the Small Animal Cancer Imaging Research Facility at the U.T. M.D. Anderson Cancer Center: The first system is a micro-CT system which uses a fixed tungsten anode x-ray tube and a single charge coupled detector camera; the second system uses a conventional CT x-ray tube with no collimation and two cesium iodide flat panel digital detectors. We evaluated the Low Contrast Detectability (LCD), spatial resolution, and radiation dose for both systems. The scanning protocols that were examined are the same as those routinely used for in-vivo mouse imaging. The LCD was evaluated using a statistical method applied to a uniform water bath image. The 3D spatial resolution was characterized using the plane spread function measured from images of an optical quality ruby bead (1 mm diameter). The radiation dose was measured utilizing a standard CT ion chamber placed in air at iso-center of each system. Characterization of both CBCT scanners will be summarized, and typical images obtained in-vivo will be presented.