

A review of Medium to High-Energy CT Scanning at Lawrence Livermore National Laboratory

Dan Schneberk¹, A.J. Koshti², Harry Martz¹, Jim Trebes¹, Gary Stone¹, Roger Perry¹

¹ Lawrence Livermore National Laboratory e-mail: schneberk1@llnl.gov

² NASA Johnson Space Center, Houston, TX

Abstract

At LLNL we have employed our in-house configured DR/CT systems for inspecting a variety of objects and assemblies for NASA, UC Davis Geology Dept., objects of interest to LLNL, and marble samples related to the scanning of Michelangelo's David. Two different types of area detectors have been used to scan these objects; systems which include Amorphous Silicon or CMOS panels, and systems which include camera-scintillator detectors. These two different types of scanners have been fielded at three different energy regimes: low-energy micro-focal scanning (30-225 kVp), medium-energy scanning (60-450 kVp), and high-energy scanning (2-15 MeV). Data from all systems are processed and reconstructed with Feldkamp cone-beam techniques, implemented on single processors, or distributed over clusters of computers. In this talk we describe salient details of scan technique and analysis of the data to support inspection of the objects.