

CT SYSTEM SPECIFICATION

Introduction

NASA Langley NESB is purchasing an integrated computed tomography (CT) and digital x-ray imaging system for installation into an existing shielded enclosure. System shall have the ability to perform both digital x-ray imaging and CT scanning from the same user interface. System shall consist of the following components and sub-systems:

1. Single Beam Line microfocus x-ray with a minimum of two x-ray sources (energies required: 225Kv and 320Kv).
2. Programmable motorized manipulation system this system shall have the ability to stitch multiple images via x-ray panel shifting
3. High resolution flat-panel digital detector array
4. Image acquisition software
5. CT reconstruction and post-processing software to be install on a machine provided by NASA.
6. System shall come with a network license copy of VG Studio MAX data visualization software to assure compatability with existing custom NASA analysis algorithms. This network license shall come with the reconstruction and image analysis add-ons for VG studio.
7. Installation and Training

System Overview

CT system shall be installed into an existing concrete and lead-shielded walk-in x-ray enclosure and shall contain the following minimum components: 225kV demountable microfocus x-ray source with additional, interchangeable 320kV microfocus module for dual microfocus capability in a single "beam-line" configuration, with Perkin Elmer XRD 1620 Digital Flat-Panel Detector, or equivalent, 7-Axis motorized manipulator (turntable X-axis, turntable Z-axis, turntable rotate, X-ray tube Y-axis, detector Y-axis, detector Z-axis, detector X-axis, with 2-position detector panel shift).

System Components (minimum requirements):

- I. **X-ray Sources**
 - a. Demountable open-tube design. For interchangeable 320 and 225 Kv sources.
 - b. Long life tungsten reflection target with indexing spiral design with minimum of 10,000 spot positions.
 - c. Vacuum system consisting of turbo-molecular pump backed by 2-stage rotary vane pump
 - d. Beryllium output window
 - e. Refrigerated water-chiller to chill both the target and optics sections of tube
 - f. Interchangeable 225kV reflection head, 225 watts maximum, required minimum focal spot size of 3 microns.

