Operating Characteristics of a Novel Desktop Computed Radiography System

Recently a new desktop computed radiography system was introduced. This system is less expensive, smaller, and simpler, with fewer moving parts than other existing systems. The operator manually removes the exposed imaging plate from its cassette and introduces it into the scanner. The exposed plate moves in a straight path through the CR system and is readout in less than one minute. As the plate is scanned by a laser diode, stimulated light is captured by an integrating-cylinder collection system and directed onto a photomultiplier tube (PMT). The PMT signal is amplified by a high-performance logarithmic amplifier, digitized to 12 bits, and stored as a DICOM image. The limiting resolution of the images acquired is comparable to other commercial CR systems. Basic measures for the image quality include a study of the repeatability and flat field accuracy. The exposure range and relationship between exposure and pixel code value are determined. Preliminary results of resolution and signal-to-noise characteristics are reported as the basis of future studies of image quality. Although at this point in the product life cycle this desktop system does not offer some features found in larger, more expensive CR systems, its low cost and small size are suited to settings where workload is low or space is a premium. (This work was supported by Lumisys, Inc.)