

Switched voltage dual energy data acquisition provides much larger energy separation and, therefore, lowers noise for the same dose than conventional "sandwich" detectors. A new detector provides many of the advantages of sandwich detectors with the superior image quality of voltage switching. Capture of x-ray photons occurs on two removable photostimulable phosphor receptors, placed back to back within the device. X-rays are produced with a conventional generator modified to provide rapid kVp switching. Acquisition of a dual-energy image proceeds by acquiring a high-energy beam (~120 kVp and ~400 mA) filtered by 1.0 mm Cu over a time period of ~30 msec. This is followed by removal of the Cu filter, a high intensity, short duration (~1 msec) light flash to erase the latent image imprinted on the front receptor (~35 msec) and initiating the 50 kVp exposure (~50 msec). Typical overall image sequencing time is ~120 msec. The image receptors are processed to extract the low and high-energy latent images with a conventional computed radiography reader system, using wide latitude and high-speed fixed parameters. Selective tissue or bone anatomy is generated from the weighted subtraction of the high and low energy images. Enhancement of signal to noise by a factor of 8 times is achievable over conventional single-shot dual energy methods with equivalent incident patient exposure. Feasibility of the approach has been demonstrated and refinement of the clinical technique is now underway. An overview of the current state of the technology and plans for future enhancement are discussed.