Abstract Text

Several tests involved exposing the full area of Kodak storage phosphor cassettes with a filtered (0.5 mm Cu + 1 mm Al) 80 kVp x-ray beam, processing them in the Kodak phosphor readers (KESPRs) at a specified time after exposure and obtaining the Exposure Index (EI) in the "Pattern" mode. For a cassette exposed (to an EI of 3000) and then processed in the same KESPR, the EI for repeated exposures was within ±10 units (the readout resolution) of the mean. For 25-50 cassettes of the same size and type, similarly exposed and then processed in the same KESPR, the EI for most was within ±25 units of the mean. The EI obtained with 12 of the hospital's KESPRs, after processing matched cassettes given the same exposures, had a range of 280 units. Ten of these KESPRs exceeded Kodak's tolerance limits. Decay of EI versus process delay time for quasi-uniform images, followed to four days after exposure over an EI decrease of 430 units, can be represented by three exponential components plus a constant. A low contrast test pattern image, allowed to decay 300 units (to the EI associated with half the original exposure) showed quantum mottle comparable to the undecayed image. Distance measurements using the DX workstations' "tools" were accurate to <1% for most cassette dimensions. EI and other parameters accompanying images on QC workstations were either absent, mislabeled or had insufficient digits in the archived versions.