

In selecting or evaluating new phosphors for dynamic imaging applications, the optical properties must be determined. Light from various phosphors under evaluation was directed toward a sensitive Si PIN-photodiode detector placed outside the direct x-ray beam. Pulses from a DSA unit irradiated the phosphor while the detected signal was recorded on a storage oscilloscope. A NaI(Tl) crystal with <1 microsecond decay time was used to determine the 0.6 ms 90% fall time of the exposure pulse. Three commercial screen materials and four experimental hybrid scintillating fiber optic/phosphor materials (Collimated Holes Inc.) were tested. Kodak Lanex and Agfa MR Detail phosphors had 50%, 90%, 99% decay times of 0.6, 1.5, 2.4 ms while two of the experimental materials had similar decay times. One experimental phosphor was measured to have a 99% decay time of nearly 10 ms and is not appropriate for dynamic imaging applications; however, all of the other phosphors may be considered further.

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