Spatially coherent fiberoptic plates (fps) are important components of CCD-based small format and full breast digital mammographic imagers. These plates filter out the x-rays for protection of the CCD and transmit efficiently the scintillations from the phosphor. Attenuation measurements were performed using nine fps of different composition and thickness. Mammographic spectra and an Am-241 source (59.54 keV) were used. The spectra were detected with a high resolution cadmium zinc telluride spectrometer. The linear attenuation coefficients varied by more than a factor of 3 in the set of the tested fps at both mammographic energies and 59.54 keV. A 2 mm thick plate had an x-ray transmitted fraction of approximately 1.75x10-5 at mammographic energies. In mammography, with fluence of 500,000 to 1,500,000 x-rays/mm2, past the phosphor, 9 to 27 x-rays/mm2 are transmitted to the CCD corresponding to 32,400 to 97,200 x-rays on the entire 60x60 mm surface. With a 0.5% CCD direct x-ray detection efficiency, 165 to 495 x-rays are absorbed producing undesirable “hot” pixels. The thickness of the fp and the CCD package present a significant challenge in the design of small format digital x-ray cassettes. Our results suggest that a 3.0 mm thick high absorption plate is adequate for shielding. With optimization of the fp composition, a thickness of about 2.0 mm is realistic. This allows more space for the cooling components of the CCD cassette and for a more compact device which is critical for clinical implementation of the technology.