Accurate determination of the dose distribution characteristics typical of x-ray fluoroscopy beams has become more important due to modern high dose rate interventional procedures. Recent investigators have determined skin doses and imparted energies typical of diagnostic quality x-ray beams, but published depth dose and isodose curves are not representative of the dose distribution characteristics of modern diagnostic equipment. This study was undertaken to characterize the dose distributions typical of modern fluoroscopy procedures.

The dose rate, percent depth dose curves, and cross plot profiles have been measured in a water phantom. The dose rate delivered to a water phantom was calculated for a depth of 2 cm in phantom using the air kerma measured by a Baldwin-Farmer ion chamber and the ratio of the mass attenuation coefficient of water to that of air. Depth dose curves and vertical and horizontal cross plot profiles were measured in phantom for various commonly used x-ray beams.

The beam qualities investigated were characterized by peak tube potential, first half value layer and homogeneity coefficient. For peak tube potentials of 60, 80, 100, and 120 kVp x-ray beams and field sizes of 8x8, 12x12 and 15x15 cm^2, percent depth dose curves and cross profiles at depths of 2, 5, 10, and 15 cm were measured.

The measured percent depth dose curves compare favorably with published data. The cross plots measured accurately describe the dose deposition characteristics of modern fluoroscopy equipment and can be used to better estimate patient dose from high dose rate interventional procedures.