Since the early use of cobalt teletherapy, wedges have been a valuable tool in complex treatment planning. The effect of wedge attenuation on treatment time was minimized by designing wedges for specific field sizes. Until the 1980's, wedges for linear accelerators were limited to 12cm or 15cm maximum field size and displayed little change in wedge transmission from a 10cm square calibration field size to the maximum useful field size. With the introduction of wedges designed for fields of 20 X 40cm or greater, the effect of the eight fold increase in area over the calibration field size is seen as a substantial increase in wedge transmission (as much as 5% variation over the range of useful field sizes).

For treatments utilizing rectangular fields, the "equivalent square" formalism is used to assign a square field size with equivalent scatter characteristics for calculation purposes. It is not obvious that wedge factors should necessarily follow that formalism.

Wedge transmission factors have been measured for square fields and rectangular fields of varying eccentricity with the long axis of the fields aligned along and transverse to the wedge axis. The wedge transmission as well as the measured dose for unwedged fields for three linear accelerators of varying vintage, manufacturer and photon beam energy are presented and validity of the "equivalent square" formalism within the accuracy of the measurement technique used will be demonstrated.