Increased US export of cotton and global competition necessitates that plant breeders continue to improve fiber properties of upland cotton, *Gossypium hirsutum* L. Cotton cultivars having whiter fibers are desirable due to decreased processing costs. TAM B182-33 ELS (Extra Long Staple) germplasm line of upland cotton, and Tamcot CAMD-E, a short staple obsolete cultivar were crossed with 36 cultivars representing unique germplasm pools from China (12 cultivars), west and central Africa (7 cultivars), south Africa (10 cultivars), and seven cultivars representing distinct germplasm pools within the United States. Parents and F1s were grown in College Station, TX in a line x tester design during the summers of 2010 and 2011. Seedcotton was harvested by hand (to avoid the presence of trash particles in the lint that could bias the color measurements), deburred and allowed to dry in limited light. Cotton samples were ginned on an 8-saw laboratory gin, separated into 2.00 gram subsamples and color measurements were taken using a Konica-Minolta CR-310 reflectance colorimeter. Absolute color measurements and color differences were obtained in five color systems (XYZ, Yxy, L*a*b*, LCH and Hunter Lab). Color measurements on the parents and F1s, especially in L*a*b*, will be discussed.