A new Compton polarimeter was recently built in Hall C at Jefferson Lab in order to meet the tight constraints on polarimetry needed for the Qweak experiment. This polarimeter, modelled after the Hall A design, utilizes a circularly polarized green laser locked to a Fabry-Perot optical cavity intersecting the electron beam at small angles (≈ 1.3°). Both the scattered electrons and the back-scattered photons are detected separately downstream of the interaction point, providing in principle, two semi-independent measurements of the electron beam polarization.

I will demonstrate the recent performance of the Compton polarimeter with special emphasis on the electron detector analysis. I will also discuss a novel technique used to determine the polarization of the light inside the Fabry-Perot cavity with very small systematic uncertainty.