

Abstract

A complete description of the phasor estimation process leads to the ideal multiobjective function that a digital recursive filter must fulfill in order to provide more accurate phasor estimates under power system disturbances. The raised cosine filter, widely used in digital transmission, is described and proposed to approach those criteria. In this work, a hybrid Taguchi Invasive Weed algorithm (HTIW) is employed to solve the problem of designing optimal digital infinite-impulse response (IIR) filters. The HTIW approach is a method of combining the conventional IWO, which has a powerful global exploration capability, with the Taguchi method that can exploit the optimum offspring. Simulation results corroborate an improvement in the performance (accuracy and speed) of these phasor estimates as compared with those obtained with the cosine filter.)