

The normalized least-mean-square (NLMS) algorithm is one of the most common choices for echo cancellation. Nevertheless, an NLMS algorithm has to compromise between several performances criteria (e.g., convergence rate versus misadjustment, tracking capabilities versus robustness). Thus, a variable step-size NLMS (VSS-NLMS) algorithm represents a more reliable solution. Recently, several VSS-NLMS algorithms that take into account the existence of the near-end signal (in terms of power estimate) have been proposed with the objective of recovering the near-end signal from the error signal. Since this is the basic goal in echo cancellation, this class of VSS-NLMS algorithms can be very suitable for such an application. The main issue remains the estimation of the near-end signal power, in terms of accuracy and other practical aspects (e.g., available parameters, computational complexity). This paper analyzes different solutions for this problem, making a first unified approach over the performances of this family of VSS-NLMS algorithms.