



Summary

The present invention relates to a method and to an apparatus for ghost cancelling and/or equalizing.

In "A tutorial on ghost cancelling", W. Ciciora et al, IEEE Transactions on Consumer Electronics, Vol. 25, pages 9 - 44, 25. Feb 1979, the principle of ghost cancelling is described. A received test signal is compared with an ideal version of this test signal. The coefficients of a correction filter applied to the received test signal are adjusted in such a way that the filter output signal matches as much as possible to the ideal test signal. But the filter length is limited and in a lot of cases no sufficient ghost cancellation is possible.

According to the invention a first long LMS adaptive filter (LMS1) which may have more than 1000 taps minimizes the error (ϵ) between the filtered output signal (y) of the distorted input signal (x) (a transmitted reference signal) and an ideal reference signal. A positioner (14) takes coefficients ($C1$) from the first LMS filter and determines the most useful subset of small filters separated by variable delays. The position information (PI) calculated in the positioner comprises the lengths of these delays. The subset of filters forms together with the variable delays a second LMS adaptive filter (LMS2) with a tap number corresponding to the first LMS filter tap number. The coefficients corresponding to the delay 'taps' can be regarded as set to zero and the locations of the delay parts of the second LMS filter remain fixed. The coefficients of the filter parts (corresponding to the small filters) are modified adaptively until the best match between the filtered received reference signal and the ideal reference signal is achieved.

The first and second LMS filter need not to work in real time. After establishing of the filter coefficient modification of the subsets these coefficients ($C2$) are copied to a real time main filter (MF) working on the whole input signal, e.g. a TV signal, with exception of said reference signal. The main filter comprises a respective subset of adjustable small filters and a set of adjustable delays.