

ABSTRACT

TIME DOMAIN FILTER FOR A COMMUNICATION CHANNEL

An analog, adaptive generalized transversal equalizer 22 for use in the filtering system 10 of a disc drive PRML read channel, the transversal equalizer 22 employing non-ideal delay elements. The filtering system 10 comprises the equalizer 22 connected in series with an adaptive, analog prefilter 14. The prefilter 14 is comprised of a plurality of serially connected, adaptive, analog filter stages 54 having variable transfer functions determined by adaptive parameter signals received by the filter stages. The generalized transversal equalizer 22 comprises a plurality of serially connected, adaptive, analog low pass filters 92,94,96,98, having taps on either side of each low pass filter 92,94,96,98, a plurality of multipliers 100,102,104,106,108, that receive signals at the tap locations of the filters 92,94,96,98, and a summing circuit 120 that receives the outputs of the multipliers 100,102,104,106,108. The transfer functions of the filters 92,94,96,98, are continuously variable in relation to adaptive parameter signals received by the filters 92,94,96,98, and the coefficients of multiplication are variable in relation to the adaptation process.

Fig. 5

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