DISK DRIVE USING PRML CLASS IV SAMPLING
DATA DETECTION WITH DIGITAL ADAPTIVE EQUALIZATION

Abstract of the Disclosure

A class IV partial response, maximum likelihood data channel for a disk drive includes an encoder connected to a data sequencer for converting user data blocks into a predetermined 8/9ths code such as a (0,4,4,) code. A precoder converts the 8/9ths code into class IV code. An analog write driver supplies the class IV code to a data transducer head during data write-to-disk operations. A read channel connected to the head amplifies and conditions analog signals during data read operations. A quantizer produces samples of the analog signals in accordance with a quantization clock generated by a clock generator. An adaptive FIR filter means is conditions the data samples in accordance with selectable, adaptive filter coefficients. A Viterbi detector puts out the class IV code from the filtered and quantized samples. A postcoder converts the detected class IV code into detected 8/9ths code. A decoder converts the detected 8/9ths code into user data and supplies user data to the sequencer. The programmable FIR filter is provided with servo coefficients during reading of the servo sectors, and an asynchronous servo detector detects head position information from the quantized and filtered samples without phase locking of the quantization clock generator to the quantized servo samples. The asynchronous servo detector is also used to aid detection of sync field preamble information before the FIR filter is fully adapted. Multi-mode gain and timing loops are also a part of the present invention.

This Sheet Has Been Replaced

