

DISK DRIVE USING MULTIPLE SERVO TIMING MARKS THAT FORM A CODE OF UNIQUE INTERRELATED BIT PATTERNS

Abstract

A disk drive (102) has a plurality of servo sectors (120) containing error-detectable and error-correctable servo timing marks (STMs) (121, 221, 213). Each STM is a pattern of n bits, with each track having m unique STM patterns, each pattern having a minimum distance d to every other pattern, where d is greater than one. The error-tolerant STMs use a code of fixed bit patterns, with minimum Hamming distance against all the patterns in the search, called d . These patterns may include bits associated with servo sectors, such as track index, servo sector number, and recording head number. The drive includes STM decoding circuitry (400) that recognizes valid STMs when d is within predetermined limits. The drive allows a tradeoff between error correction and error detection. The STM decoding circuitry (400) is adaptive by allowing the error correction and error detection comparison values to be updatable.

Figure 3