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RADIAL SELF-PROPAGATION PATTERN GENERATION FOR DISK FILE SERVOWRITING

ABSTRACT

Writing patterns on a disk drive (20) is disclosed in which a position error signal (PES) equals a difference between a reference waveform (R) and a measured relative position waveform (X). Servo patterns are written on successive radial tracks and the reference waveform (X) is derived as a function of a closed loop transfer function and a measured position waveform (X). The frequency dependent servo loop gain is set so that the closed loop response is ≤ 1 at every integral multiple of disk rotation frequency, yet is high enough to reduce mechanical disturbances. A series of first patterns are written along a track, the head (22) is displaced a known fraction of a track to a displaced position, and selected ones of the first patterns position information read. The spacing between adjacent tracks is adjusted without writing the entire disk (26). Deviations in demodulated position signal arising from random placement errors in servo patterns can be cancelled.

Fig. 1

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