

Target and Equalizer Design for Perpendicular Heat-Assisted Magnetic Recording

Authors : P. Tueku, P. Supnithi, R. Wongsathan

Abstract : Heat-Assisted Magnetic Recording (HAMR) is one of the leading technologies identified to enable areal density beyond 1 Tb/in² of magnetic recording systems. A key challenge to HAMR designing is accuracy of positioning, timing of the firing laser, power of the laser, thermo-magnetic head, head-disk interface and cooling system. We study the effect of HAMR parameters on transition center and transition width. The HAMR is model using Thermal Williams-Comstock (TWC) and microtrack model. The target and equalizer are designed by the minimum mean square error (MMSE). The result shows that the unit energy constraint outperforms other constraints.

Keywords : heat-assisted magnetic recording, thermal Williams-Comstock equation, microtrack model, equalizer

Conference Title : ICCSSP 2014 : International Conference on Circuits, Systems, and Signal Processing

Conference Location : Singapore, Singapore

Conference Dates : March 30-31, 2014