

Measurement of Thermal Protrusion Profile in Magnetic Recording Heads via Wyko Interferometry

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Abstract : A procedure in measuring the thermal protrusion profiles of magnetic recording heads was developed using a Wyko HD-8100 optical interference-based instrument. The protrusions in the heads were made by the application of a constant power through the thermal flying height controller pads. It was found that the thermally-induced bubble is confined to form in the same head locations, primarily in the reader and writer regions, regardless of the direction of approach of temperature. An application of power to the thermal flying height control pads ranging from 0 to 50 milliWatts showed that the protrusions demonstrate a linear dependence with the supplied power. The efficiencies calculated using this method were compared to that obtained through Guzik and found to be 19.57% greater due to the static testing environment used in the testing.

Keywords : thermal protrusion profile, magnetic recording heads, wyko interferometry, thermal flying height control

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