

# Dependence of bias current on base line popping noise in GMR recording head in static test

A. Siritaratiwat<sup>a</sup>, K. Chooruang<sup>a,\*</sup>, R. Sivarat<sup>b</sup>

<sup>a</sup>*KKU-Seagate Cooperation Research Laboratory, Department of Electrical Engineering, Khon Kaen University, Khon Kaen, 40002, Thailand.*

<sup>b</sup>*Seagate Technology (Thailand) Ltd., Co., 1627, Teparuk Road, Samutprakarn 10270, Thailand.*

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Base line popping noise (BLPN) is recently aware in the test of recording head because of its unclarified origination. It is thought to be due to Barkhausen jump in domains of giant magnetoresistive (GMR) head [1]. The different signal amplitude between a reference, with no current, and a jump signal, with applied current, is mainly and widely used in industrial production. In addition the dynamic test is the only one possibility. This paper shows the test of BLPN under the static test, which less parameter is required, and so, the prediction of BLPN occurrence is possible and reliable. It is discovered that a more current a more BLPN is occurred, i.e. BLPN of a 2 mA bias current is about 25% higher than that of a 1 mA bias current. It is thought to be due to an increased domain energy in GMR head. Therefore, this results shows that the hard-disk drive industry has to be severely aware of the effect of bias current. It is also firstly reported that static test is better to capture the BLPN than the various-parametric conventional one.

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[1] Yimin Hsu, Spectrum Analysis of Baseline Popping Noise in MR Heads IEEE Transactions on Magnetics, Vol. 31, No. 6, November 1995.

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\* Corresponding author. Tel. +66-4320-2353. FAX +66-4320-2836.

*Email addresses:* apirat@kku.ac.th (A. Siritaratiwat), 4550400108@kku.ac.th (K. Chooruang).