Manual Adjustment of Drive Field Phase

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Requires zero coercivity sample (e.g. Dysprosium) or other sample known to have an Hc value of zero.

Instructions will be for an individual horizontal drive level, and can be repeated for whichever drive levels need to be adjusted.

1. Make a backup copy of the constant file (c:\shbWin\Settings\constant.dat)
2. Go to Factory Level
3. Go to Maint/Low-level IO/Write DAC
4. Select the "NORM Field PHASE Correction" DAC
5. The value displayed on the slider on this DAC (decimal on left, hex on right) will change as each drive range is selected.
6. Click the Measure button in the upper-left corner of the Results window to bring up the manual measurement dialog box.
7. Select "Hc" from the dropdown list in this box, and also check the "No Tilt" box.
8. Set instrument to drive level to be adjusted (for this example we will use 20 Oe/division – 100 Oe peak drive).
9. Note the reading on the right side (hex value) of the slider for the Phase Correction DAC.
10. Balance instrument so that there is a flat trace, with Realtime Tilt or by pressing the Balance button.
11. Turn off Realtime Tilt if using a Dysprosium sample . Leave Realtime tilt on for sample with normal BH loop.
12. Insert zero-Hc sample, and adjust vertical sensitivity so that the resulting tilted line is as large as possible, but not offscreen. If not using a Dysprosium sample, adjust for a good hard-axis loop.
13. Remove zero-Hc sample
14. Turn on Filter and wait long enough for filter to settle (10-15 seconds)
15. Click the "Store" button to store a pattern.
16. Insert zero-Hc sample and allow tilted trace to settle – it will remain tilted (BH loop will be displayed if not using Dysprosium)
17. Click the Measure button in the manual measurement box to do an Hc measurement.
18. Ideally this measurement will be "0.00 Oe".
19. Adjust the slider (by clicking the arrows, or click in the space above or below the small box for faster movement) in the Write DAC box up to reduce the Hc value, or down to increase it, and re-measure.
20. When you have the value that gets Hc closest to zero (to within reasonable tolerance of perhaps 0.02-0.05 Oe), you are ready to write that value into the constant file.

21. You may find you cannot get the Hc value all the way to 0, if for example you move the slider all the way to “0”, and the Hc value is still a negative number. If so, the best value you can use is 0, and you should make a note of the residual Hc error, as that will be added to all Hc measurements done at that drive level.
22. Click the button labeled “Save to Constant (“DRIVE_PHASE_NORM”)”
23. Repeat this process for any other drive ranges of interest.
24. When done, you may exit from the software and the new settings will have been automatically saved (unless the box “No Constant Automatic Save” is checked in Factory Options, in which case the values must be manually saved using the menu entry File/Write Constants. This menu entry will not be present if the “No Constant Automatic Save” box is not checked).