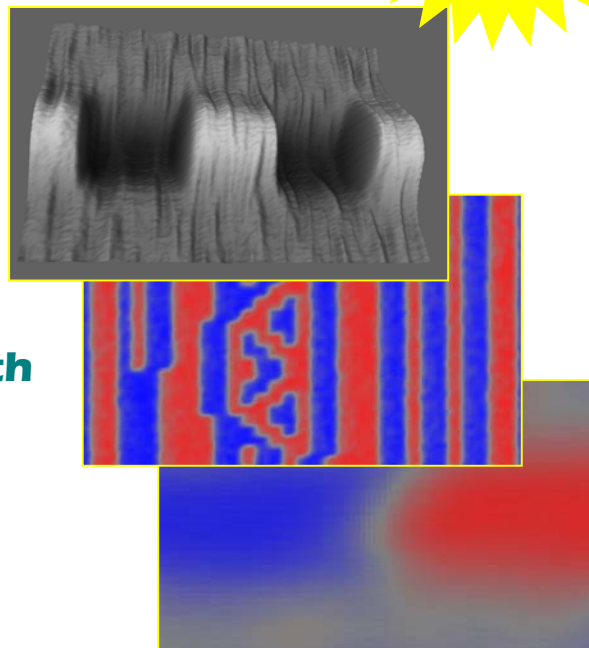


GUZIK PRODUCT BULLETIN

3D Pulse Profile Test for Nano-Scale Magnetic Field Imaging with D5000 Signal Analyzer



- **Build 3D and 2D Plots of Individual Magnetic Transitions**
- **Along-the-track Sampling Period 0.1ns (2nm at 7200RPM, MD location)***
- **Cross-track Accuracy 0.4nm (1 σ) with Guzik Servo****
- **Non-destructive Measurements**
- **Scan Time less than 20 Seconds for 10 μ m \times 10 μ m Area with 12 nm Step**
- **Compatible with Perpendicular and Longitudinal Products**



The 3D Pulse Profile Test allows you to capture data from the magnetic media and plot as a three-dimensional plot of read-back signal amplitude versus off-track offset and along-the-track direction. The acquisition is performed using Guzik D5000 analyzer with data acquisition rate up to 10 Gsample/s (0.1 ns sampling resolution). Off-track positioning is performed using Guzik servo with 0.01 nm resolution and 0.4 nm accuracy, 1 sigma**. The read-back amplitude can be shown on two-dimensional and/or three-dimensional plots, with or without averaging. The captured data can be exported to a file, such that you can design your own algorithms of data processing and representation.

Guzik 3D Pulse Profile test is non-destructive – you do not have to remove media from the spindrive, and/or provide special marking before measurements. You can write a different pattern, vary write current, change other parameters, and perform measurements on the same area of the media. The test takes less than 20 seconds when scanning 10 μ m \times 10 μ m area with 12 nm step.

* All specifications are subject to change.

** You must have a Servo-3 or Servo-4 system to achieve this accuracy.

You can analyze servo and data patterns previously written or pre-printed on the media, as well as write and read a pattern using Guzik RWA-2000 series.

Figure 1 below shows a fragment of a drive servo captured by the 3D Pulse Profile Test. The media was taken from a drive purchased through a retail store, and placed on a Guzik V2002 spinstand. The following is the description of the drive used for this measurement:

- Drive Manufacturer: SEAGATE
- Model: Momentus 5400.3, ST9160821A
- S/N: 5MA0VSLM
- Technology: Perpendicular Recording
- Form factor: 2.5", 5400 RPM

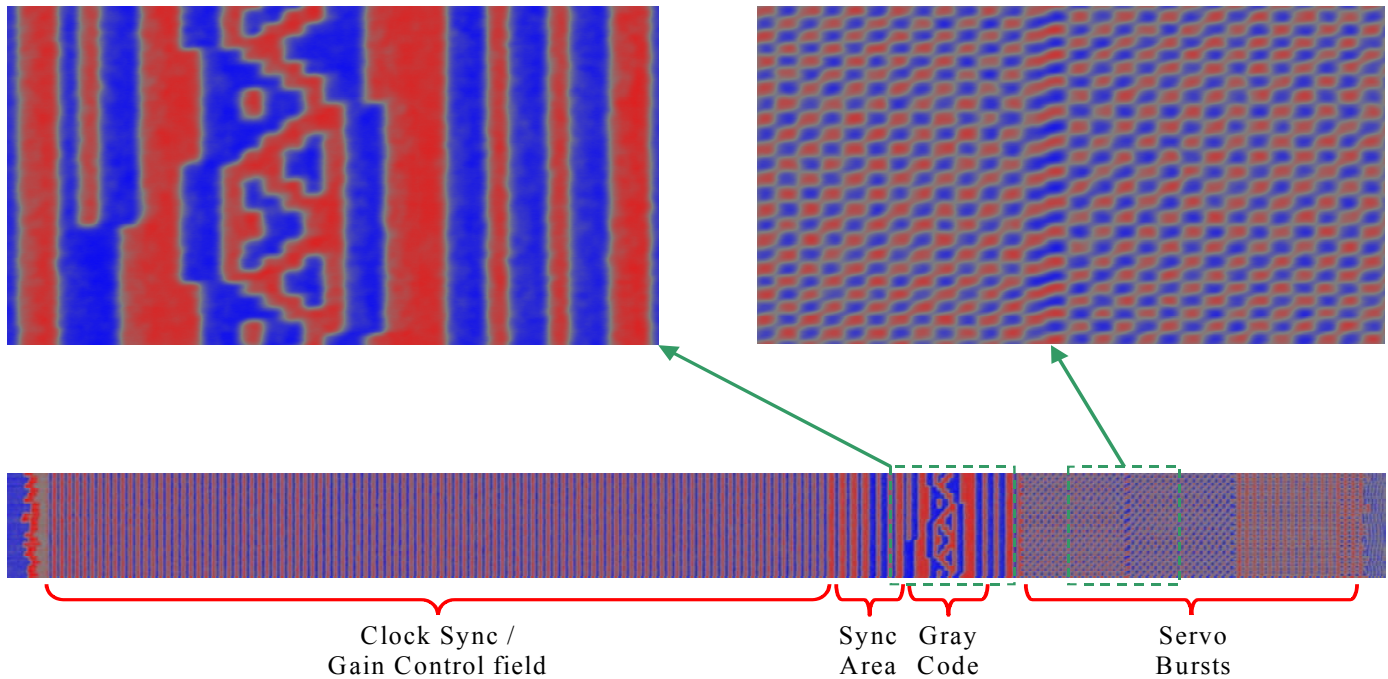


Figure 1 Drive Servo

Figure 2 shows low-frequency pattern written on the perpendicular media. This 10MHz pattern was written using Guzik RWA-2000 series, and then read and processed by the 3D Pulse Profile test. Red color indicates positive transitions, blue color indicates negative transitions.

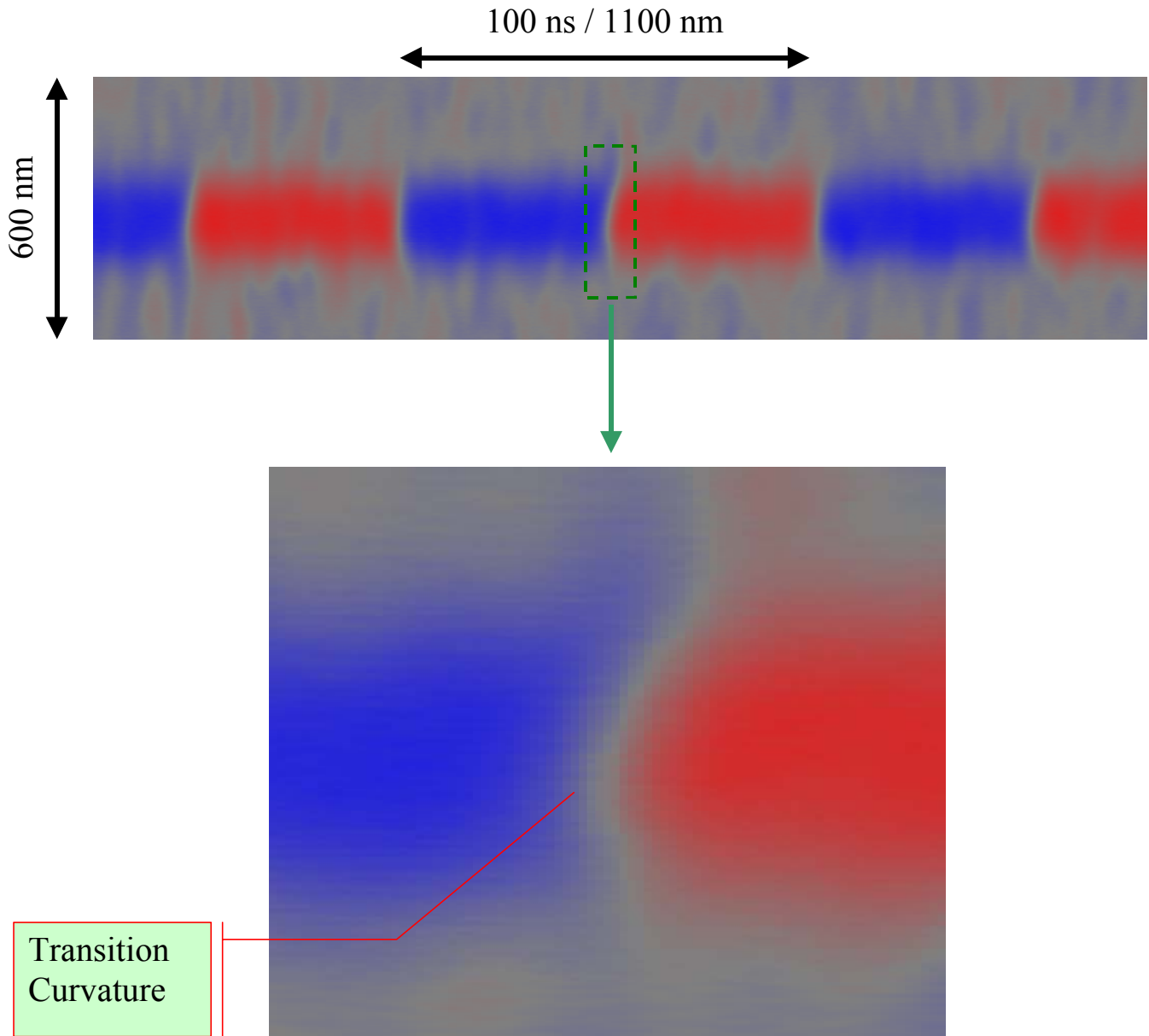


Figure 2 Perpendicular Transitions, 10MHz Pattern

Figure 3 shows the same low-frequency perpendicular transitions, displayed as a three-dimensional plot.

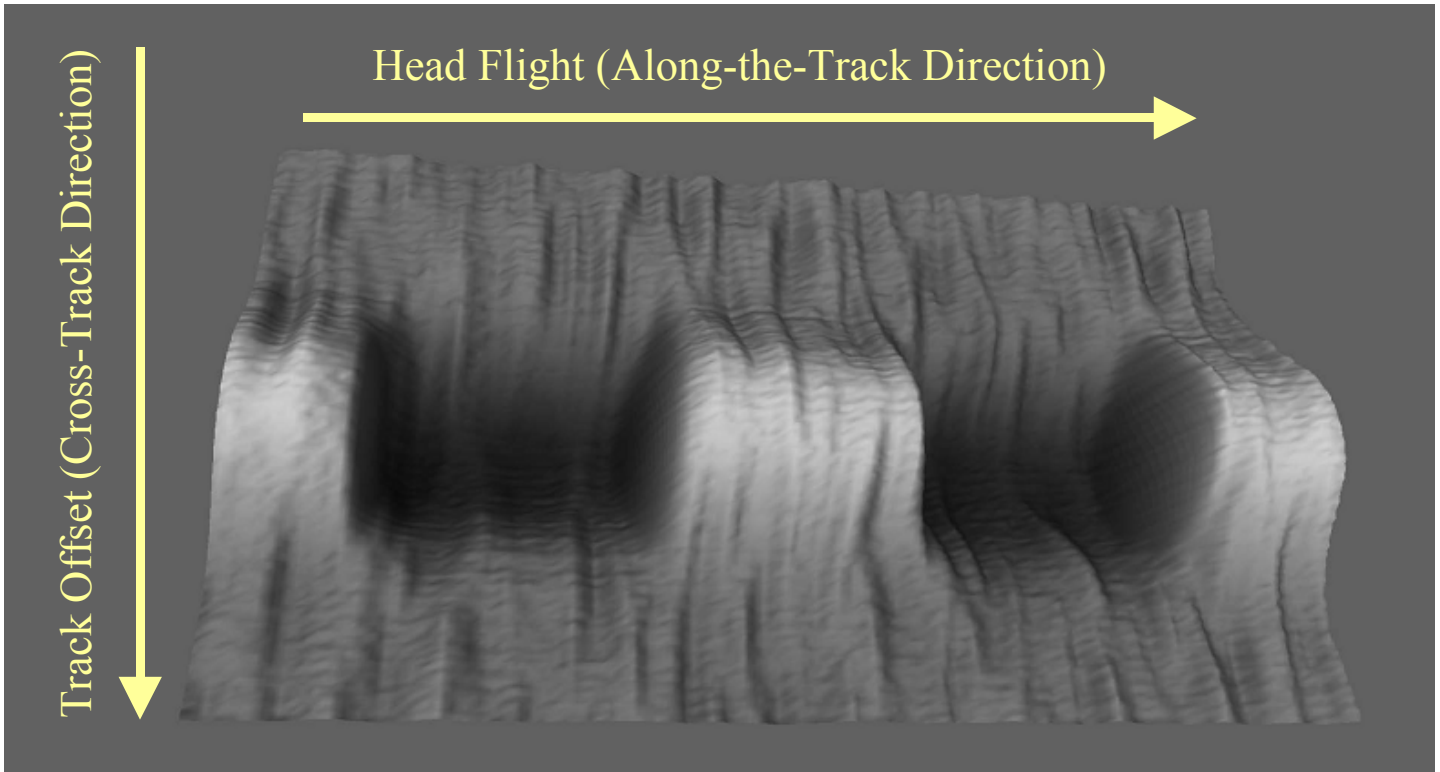


Figure 3 Perpendicular Transitions, 10MHz Pattern, 3D View

Requirements

The 3D Pulse Profile test is an optional purchase software, which requires the following:

1. Guzik RWA-2000 series.
2. Guzik D5000 Signal Analyzer.
3. WITE32 Revision 4.00 or later.
4. Software license. Please contact sales@guzik.com to obtain a quotation for the license.

Note: It is recommended that your RWA is equipped with Servo Revision 3 or later.

Note: Guzik V2000 Spinstand is recommended to provide Index Skew control, in order to study patterns pre-written or pre-printed on the media.



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