

Hprobe Announces Breakthroughs in MRAM Wafer Testing to Support Production Ramp-up

Breakthrough technology to provide new information that will lead to improved memory device performance and help increase manufacturing yields.

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[/EINPresswire.com/](https://www.einpresswire.com/) -- Hprobe, a provider of turnkey semiconductor Automatic Test Equipment (ATE) for magnetic devices, today announced a new addition to its product line—the RF Pulse Module. This is the first commercially available testing system to both collect statistics of error rate of the memory unit cell and take a deep

look into switching dynamics of resistive memories. This breakthrough technology will provide new information that will lead to improved memory device performance. Moreover, because the RF Pulse Module is two orders of magnitude faster than existing devices, it will help increase manufacturing yields.

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Hprobe has already begun shipping to tier-1 companies and major research institutes around the world.

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“We initially built the tool to evaluate very specific properties of MRAM magnetic tunnel junctions—especially

the switching stochasticity and the state stability. Along the way, we made several breakthroughs in the architecture to increase performance and attain testing throughputs compatible with production requirements. We also adapted it to work for all resistive memories.”



Performing wafer-level analog pulsing tests of resistive memories, including STT-MRAM and other non-volatile memories (such as SOT-MRAM and ReRAM), this new testing tool addresses all the device level failures that need to be tested during production. This first-of-a-kind system can be used for testing at the end of the production line, generating more data about MRAM to enable a higher level of system integration as manufacturing scales up.

Furthermore, the RF Pulse Module is the first commercially available turnkey system to peer into the switching dynamics of resistive memories in the 200 picoseconds to 200 nanoseconds pulse width range using time-resolved on-pulse measurements. These key measurements reveal defects to be seen in the switching response that cannot otherwise be controlled by measuring resistive state after-pulse. Using this new information, manufacturers can increase operating speed and reduce power consumption of memory devices.

The new product can be used as a stand-alone system, and it is also compatible for use with the [IBEX product line](#). This new RF Pulse Module complements the previous version with innovative features for evaluating at high speed the switching probability at the level of parts per million, for analyzing switching dynamics, and for monitoring auto-calibration and diagnostics functions in equipment in high-volume production.

Note: Hprobe will be exhibiting (booth #15) at the 2022 IEEE International Electron Devices Meeting ([IEDM](#)) to be held December 3-7, 2022, at the San Francisco Hilton Union Station in San Francisco, CA. This event will also be followed by the 14th MRAM Global Innovation Forum on Dec 8, 2022, organized by the IEEE Magnetics Society in conjunction with IEDM. You can meet the Hprobe team there during the entire week.

About Hprobe: Founded in March 2017 and based in Grenoble (France), Hprobe is a leading provider of test equipment for magnetic memories and sensors. Hprobe is a spin-off company of [SPINTEC](#) (one of the leading spintronics research laboratories worldwide). The company designs, manufactures, and markets equipment for wafer-level testing of magnetic devices in the semiconductor industry, which serves consumer, communication, industrial and automotive customers.

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