



Next-Level Electrical Failure Analysis at EAG: Quantum Diamond Microscopy

Eurofins EAG is expanding its advanced failure analysis capabilities with the addition of the QDm.1, a groundbreaking quantum diamond microscopy system from QuantumDiamonds GmbH. This first-of-its-kind technology delivers unprecedented visibility into electrical current paths within today's most complex electronic structures.

Powered by a diamond sensor containing billions of quantum nitrogen-vacancy (NV) centers, QDm.1 generates high-resolution, 3D magnetic field maps that reveal current flow through deeply buried layers. This enables precise identification of shorts, leakage paths, and hidden defects that traditional techniques often fail to detect.

QDm.1 enhances analysis for advanced packaging, 2.5D and 3D integration, and multilayer PCBs by pinpointing the exact location and depth of electrical issues. This allows for more targeted downstream analysis, including cross-sectioning, delayering, FIB, and TEM.

This investment reinforces Eurofins EAG's commitment to delivering state-of-the-art analytical solutions. QDm.1 strengthens our leadership in solving complex materials and electronics challenges with next-generation precision and insight.



Capabilities

- Up to 1 μm resolution for highly precise current path mapping
- Advanced depth sensing to identify the exact layer of a defect
- Fast, wide-field imaging for efficient large-area analysis
- Stable room-temperature operation for ease of use and reliability
- Exceptional sensitivity for both high-resistance opens and low-resistance shorts

Applications

- Opens with no measurable leakage, often missed by conventional techniques
- Low-resistance shorts, including vertical and hidden current paths
- Layer-specific defects in stacked die, advanced packages, and multilayer PCBs

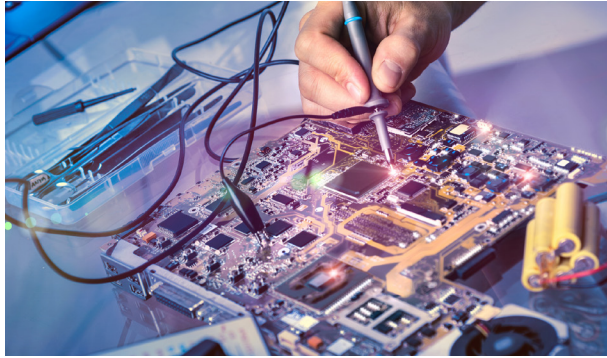
Advantages

- Higher resolution for clearer defect visualization
- True depth insight beyond surface-level information
- Faster scanning across larger areas for improved throughput
- Simplified operation under stable room-temperature conditions

Failure Analysis Support

- Accurately characterizes and pinpoints the defect location and layer
- Enables targeted physical analysis using cross-sectioning, delayering, focused ion beam (FIB), and X-ray for faster, more reliable results
- Backed by comprehensive, in-house capabilities, including PFIB, TEM, and advanced materials science expertise

Eurofins EAG is the only laboratory in North America with access to the QDm.1 quantum diamond microscopy system, enabled through an exclusive partnership with QuantumDiamonds. This breakthrough technology introduces an entirely new dimension to electrical failure analysis, delivering unmatched insight into the most complex semiconductor and electronic devices. By combining QDm.1 with our comprehensive in-house capabilities, Eurofins EAG empowers customers to identify defects faster, analyze them more precisely, and accelerate time to root cause.



Contact EAG

At EAG, our Engineering Sciences division offers a broad spectrum of specialized services to support diverse technical needs. We excel in ATE Test Development and Pilot/Production Test, Burn-in and Reliability Qualification, ESD and Latch-up Testing, Debug and FIB Circuit Edit, Failure Analysis, and Advanced Microscopy techniques including SEM, TEM, and Dual Beam FIB/PFIB. Additionally, our in-house PCB Design team provides custom hardware needs to facilitate various engineering groups to comprehensively support new product introduction (NPI), production, qualification and design debug programs.

With decades of direct experience with perpetually advancing technologies across virtually every industry, EAG is the perfect partner for engineering success. Contact EAG today.



Explore more application notes from our partner QuantumDiamonds via their Customer Portal

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