

ACCELERATING DEVELOPMENT CYCLES: FAILURE ANALYSIS AT EAG



EAG
Laboratories

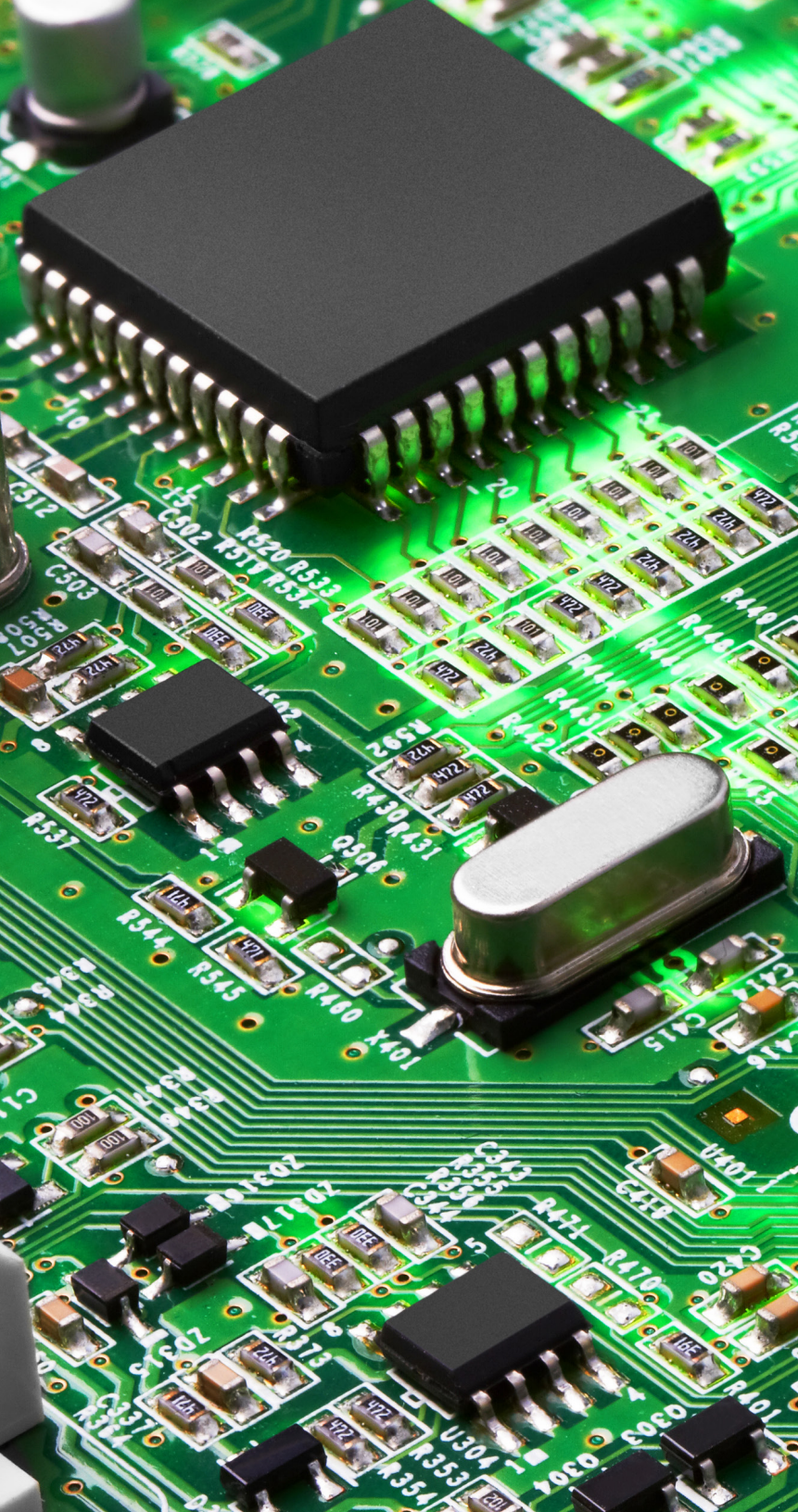
Failure Analysis of ICs and Components at Eurofins EAG Laboratories

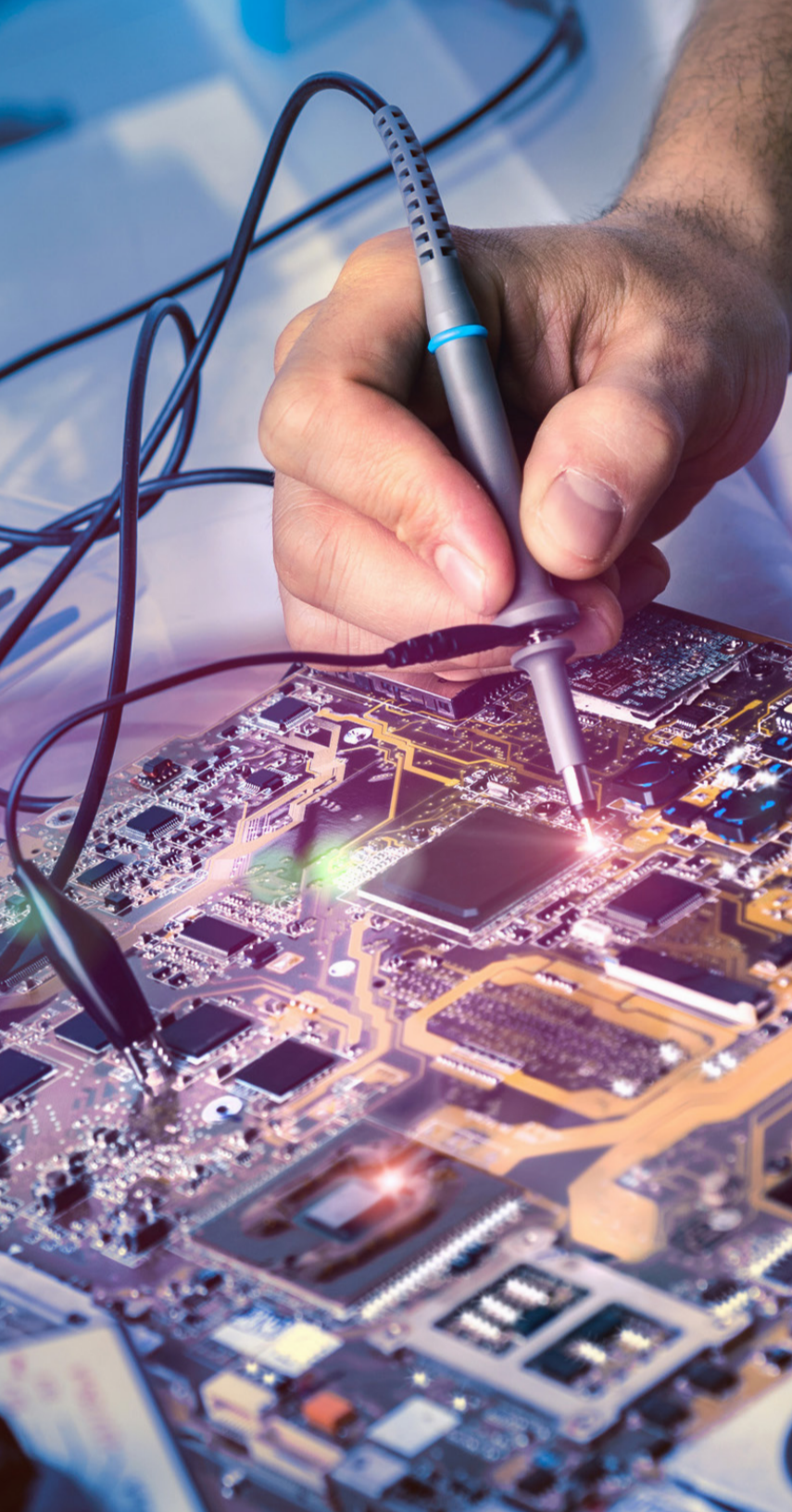
As products and technologies continue to advance in complexity, effective failure analysis becomes increasingly critical within the product development cycle and for enhancing existing products. Eurofins EAG Laboratories offers unparalleled engineering expertise complemented by cutting-edge failure analysis tools and equipment. Our capabilities enable us to address your most challenging failures with precision.

We specialize in applying superior analysis techniques across a diverse spectrum of samples, technology disciplines, and industries. For instance:

- Devices and Technology: ASIC, image sensors, discretes, passives, RF, advanced CMOS, III-V, 3D packages, LED, laser diodes, and solar cells.
- Product Life Cycle: Design debug, foundry, package assembly, final test yield, and field/customer returns.
- Systems Level Analysis: Parametric test, PCBA, solder joint integrity, and technical consultation.
- Construction and Competitor Analysis.
- Counterfeit/Authenticity Assessment.
- Materials Analysis: Cross-sectioning and teardown.
- Technical Consultation.

Our comprehensive suite of services and extensive knowledge ensures that we can lead investigations across a broad array of challenges, delivering robust solutions tailored to your specific needs.





Failure Analysis Services

EAG has a proven, methodical process of failure analysis that is efficient and can be customized for your needs. For all levels of effort, we use advanced tools and techniques coupled with expert interpretation to provide insight into the investigation and product failure.

Visual Inspection

- Digital Microscopy (stitching, focus stacking, measurements)
- Bright and dark field imaging
- Nomarski Differential Interference Contrast (DIC)
- Near-IR inspections through silicon
- UV illumination

Non-Destructive Analysis

- Scanning Acoustic Microscopy (C-SAM)
- X-ray analysis (real-time and 3D/CT)
- Thermal measurement and mapping
- Warpage, Topography and Deformation Measurements (projection moire)

Sample Preparation and Decapsulation

- 5-axis CNC (precision milling, grinding, and polishing)
- Laser ablation
- Chemical etching
- Oxygen plasma etching
- Mechanical de-lid, parallel lapping, polishing
- Advanced packaging prep (3D, Cu wire, MCM, mounted on PCB)
- Die Extraction (CSP, Flip Chip, stacked die)

Compliance & Standards

EAG is compliant with ITAR regulations, ISO 9001:2015, ISO 17025:2017, ISO 27001, and hold DLA (Defense Logistics Agency) certifications for MIL-STD-750 and MIL-STD-883 protocols.



Failure Analysis Services

Fault Isolation

- Backside sample preparation and analysis
- Laser Signal Injection Microscopy (XIVA, OBIRCH, Lock-in Mode, 1340nm, 1064nm)
- Infrared (IR) Thermography (pulse modulation mode, hot spot, temperature map)
- Light Emission Microscopy (LEM) or EMMI (InGaAs, Deep Depletion CCD)
- Nanoprobng (8 probes, 4-point Kelvin, EBIC, EBAC, EBIRCH, RCI)
- Microprobing and picoprobing
- FIB circuit edit and probe points
- Dopant profiling (AFP, SCM)

Physical Analysis

- Deprocessing and de-layering (mechanical, chemical, plasma)
- Plasma Focused Ion Beam (PFIB, de-layer advanced nodes and cross section)
- Reactive Ion Etch (RIE)
- Scanning Electron Microscopy (SEM, FE SEM)
- Energy Dispersive X-ray Spectroscopy (EDS, spot, dot map, line scan)
- Scanning Transmission Electron Microscopy (STEM)
- Dual Beam Focused Ion Beam (DB FIB, GDS navigation, EDS)
- Metallurgical Cross-Section (die, package, PCB, assembly)
- Broad Beam Ion Mill (cross section, polish, flat-mill)
- Dye and Pry (solder joint integrity)
- Dye Penetrant (fluorescent illumination)
- Bond Strength Testing (wire bond pull and ball bond/solder ball shear)
- Construction and Competitor Analysis (process technology, measurement, feature)

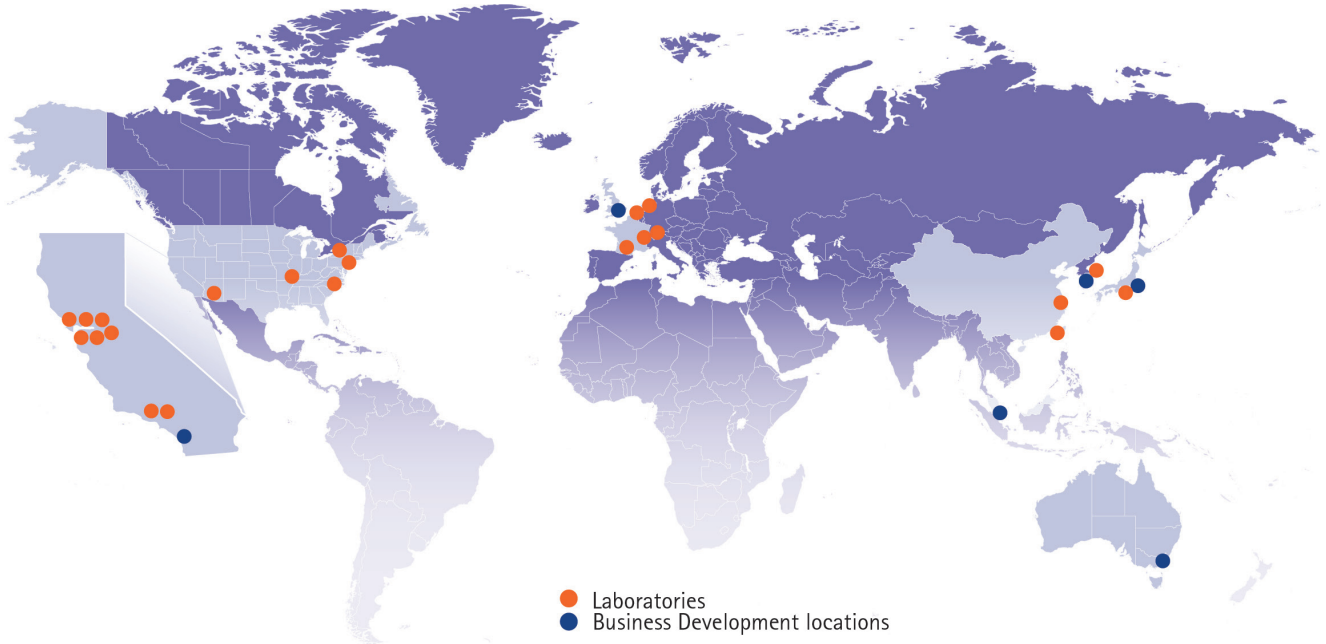
EAG offers a Full Life Cycle of Services

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.

Eurofins EAG Laboratories is here to realize your company's vision, accelerate time to market, bridge equipment and expertise needs and mitigate risks in product development. We offer specialized support leveraging advanced failure analysis expertise across diverse product technologies and a range of services that includes technique-specific solutions to turnkey root cause analysis for even the most complex projects. With decades of direct experience with perpetually advancing technologies across virtually every industry, EAG is the perfect partner for engineering success.



Scan here to learn more about our services and capabilities.



About Eurofins EAG Laboratories

When it comes to understanding the physical structure, performance, chemical properties and composition of materials, no other scientific services company offers the breadth of experience, diversity of analytical techniques or technical ingenuity of Eurofins EAG Laboratories. We don't just perform testing, we drive commercial success—through thoughtfully designed investigations, technically superior analyses, and expert interpretation of data.

We deliver multi-disciplinary, problem-solving expertise to help our customers accelerate innovation, ensure quality and safety, and protect intellectual property. Whether you are seeking to reduce time-to-market, solve manufacturing problems or ensure regulatory compliance, turn to Eurofins EAG. We know how to bring the power of science to every phase of your product lifecycle.

- 20+ facilities located in the US, Europe, and Asia
- 2,500+ instruments
- 1,000+ highly-educated employees
- Serving more than 5,000 clients worldwide
- Revenue sourced from more than 50 countries

+1 800-366-3867
WWW.EAG.COM

Complete Lifecycle of Services

- PRODUCT INNOVATION & IMPROVEMENT
- INVESTIGATION & TROUBLESHOOTING
- QUALITY ASSURANCE
- MANUFACTURING SUPPORT
- FAILURE ANALYSIS
- REGULATORY COMPLIANCE
- MANUFACTURING & SUPPLY CHAIN SUPPORT
- CONSULTING & LITIGATION