



VYRIAN

ENGINEERING  
LABS

A dark blue world map with orange square markers and leader lines pointing to five locations: Houston, Texas; Neu-Isenburg, Germany; Guadalajara, Mexico; Bangalore, India; and Shenzhen, China. Hong Kong is also marked with an orange square but lacks a leader line.

Houston, Texas

Guadalajara, Mexico

Neu-Isenburg, Germany

Bangalore, India

Hong Kong

Shenzhen, China

OUR LOCATIONS



# NO MORE SECOND-GUESSING

Do you know where your parts have been?

Don't let hidden flaws become tomorrow's failures. Stay ahead of quality issues with our comprehensive [Electronic Component Testing and Inspection services](#).

Are you sure they are meeting conformance criteria for form, fit, and function?

Get accurate, [detailed reports](#) to ensure your products meet the highest standards of quality and reliability.



# OUR MISSION

We are committed to delivering comprehensive, accurate testing services that empower clients to make critical component decisions.

We provide testing expertise using state-of-the-art technologies delivered in a world-class testing environment.





# WHAT MAKES OUR LAB DIFFERENT?

Fast, accurate and actionable results

# GET TO KNOW VEL

15<sub>years</sub>

For nearly 15 years, Vyrian Engineering Labs has tested and inspected electronic components for the world's most respected manufacturers.

1M<sup>+</sup> tests each year

The lab successfully processes and tests millions of components each year.

48<sub>hours</sub>

Vyrian Engineering Labs' experienced staff provides proactive query resolution and closes 99 percent of work orders within 48 hours to keep your parts on track

# CERTIFICATIONS

Vyrian Engineering Labs is ISO/IEC 17025 compliant, and currently auditing for certification.

## ANSI/ESD S20.20-2021

Industry-wide standard for developing control programs to limit electrostatic discharges.

[View →](#)

## ISO 9001:2015 and AS9120:2016

Designed for organizations that procure parts, materials, and assemblies within the aerospace industry.

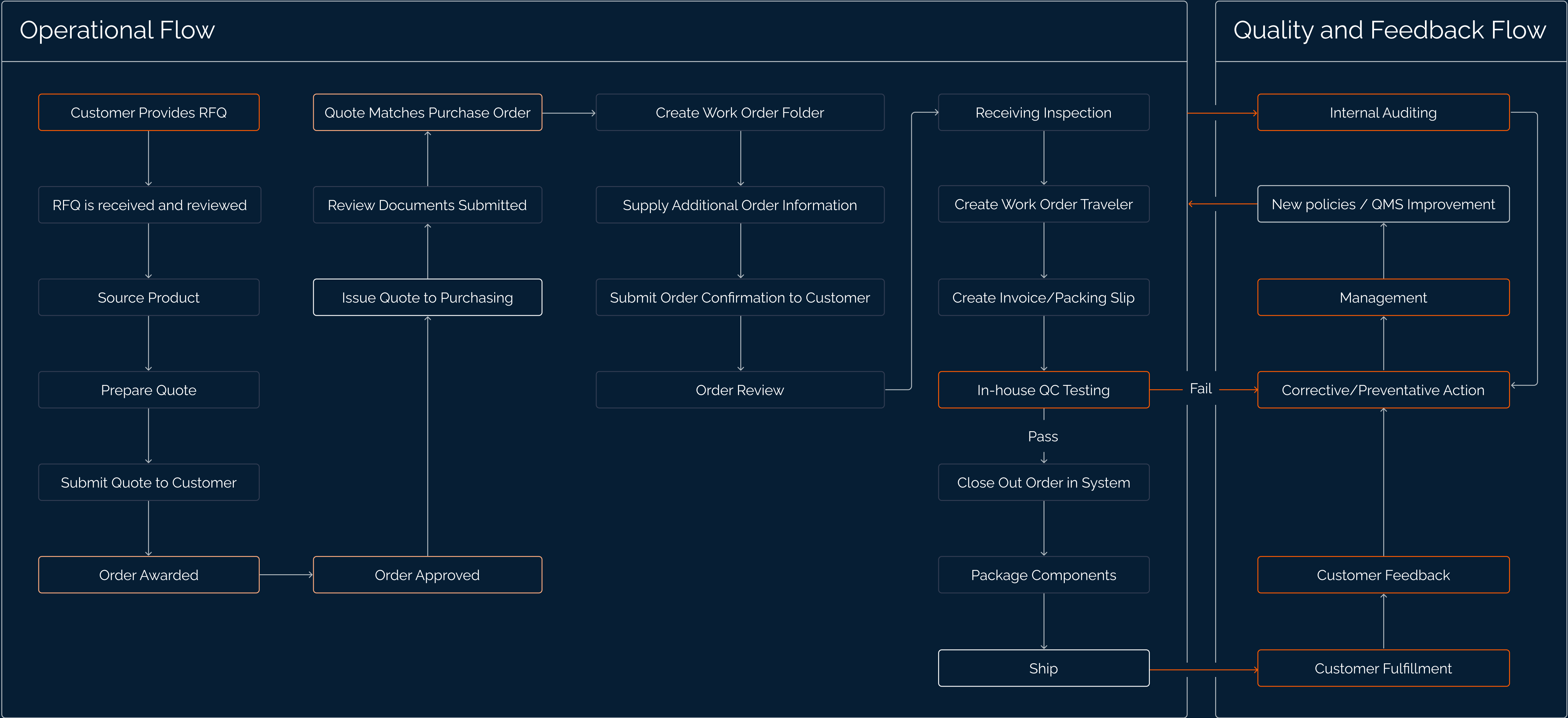
[View →](#)

## AS 6081:2012

Standard aimed at mitigating the risk of purchasing, receiving, and selling counterfeit electrical and electronic equipment parts in the open market.

[View →](#)

# ORDER PROCESS FLOW



# EXPERT TESTING FOR YOUR INDUSTRY

We're able to test and inspect components for a wide variety of industry uses.

■ MEDICAL

■ INDUSTRIAL

■ GOVERNMENT

■ IT

■ DEFENSE

■ AEROSPACE

■ TELECOMMUNICATIONS

# TESTING CAPABILITIES

Test Item	AS6171A Standard
External Visual, General Criteria	AS6171/2A
External Visual, Detailed Criteria	AS6171/2A
Marking Permanency Test	AS6171/2A
Chemical Resurfacing Tests	AS6171/2A
Mechanical Scrape Test	AS6171/2A
Dimensional Analysis	AS6171/2A
XRF	AS6171/3
Elemental Analysis (LIBS)	-
Internal Visual Inspection (DDPA)	AS6171/4
Radiological Inspection 2D	AS6171/5
Electrical Tests	AS6171/7
Solderability	J-STD-002



# VISUAL INSPECTION



# KEYENCE VHX – 7000

Digital Microscope



## 4K CMOS

High Resolution



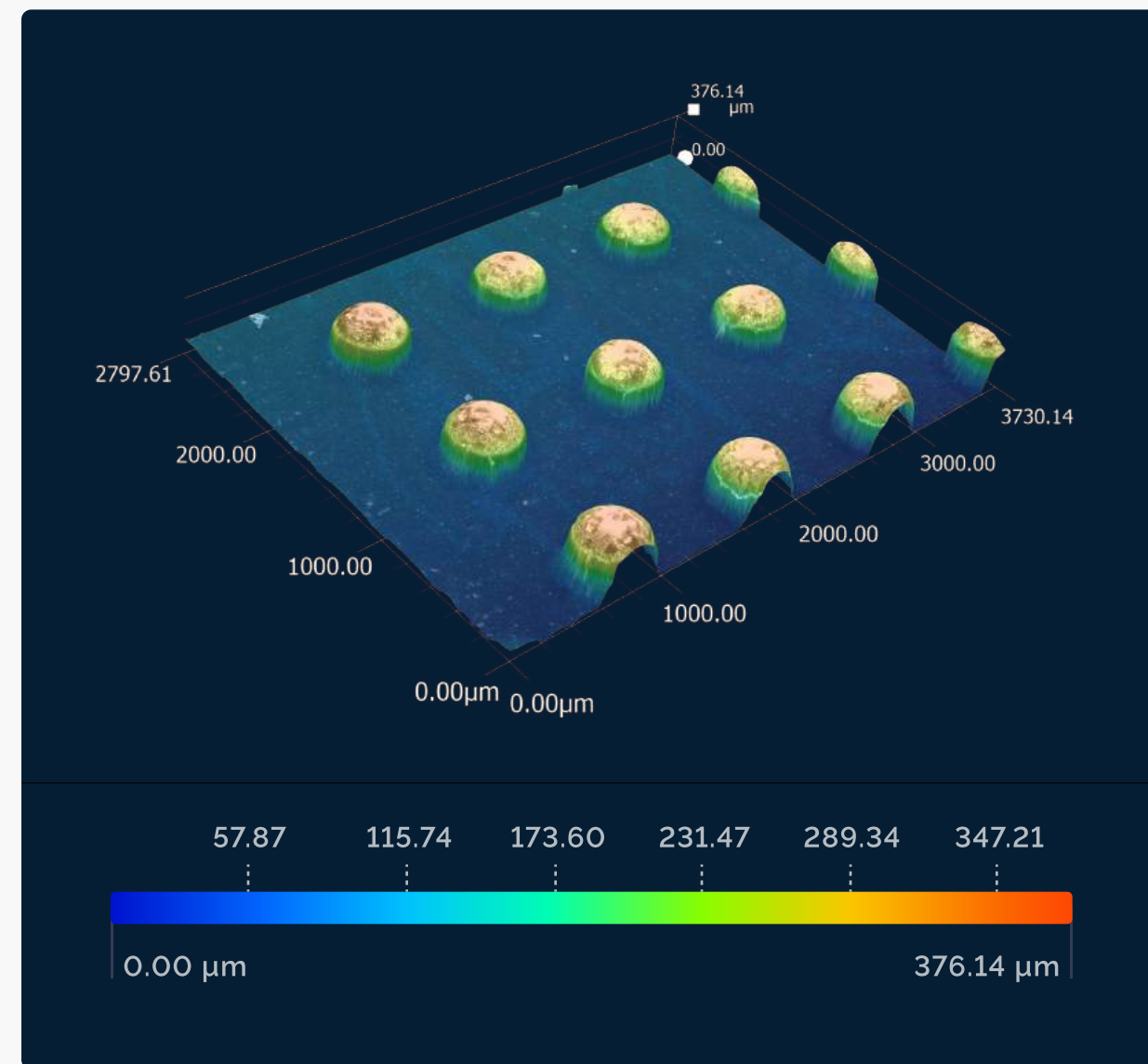
Advanced Measuring  
Capabilities



High Performance  
Lighting

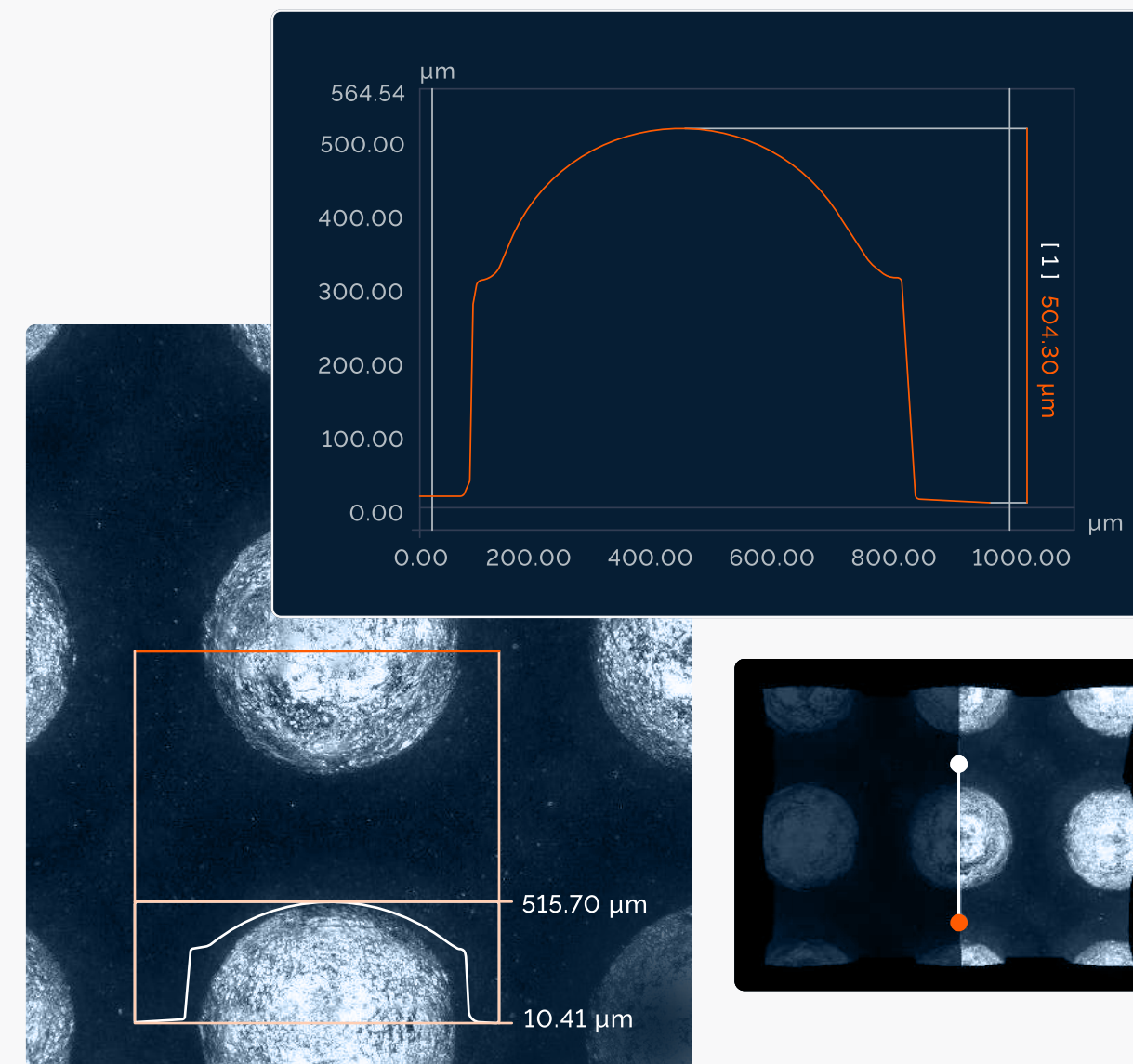


# KEYENCE VHX – 7000



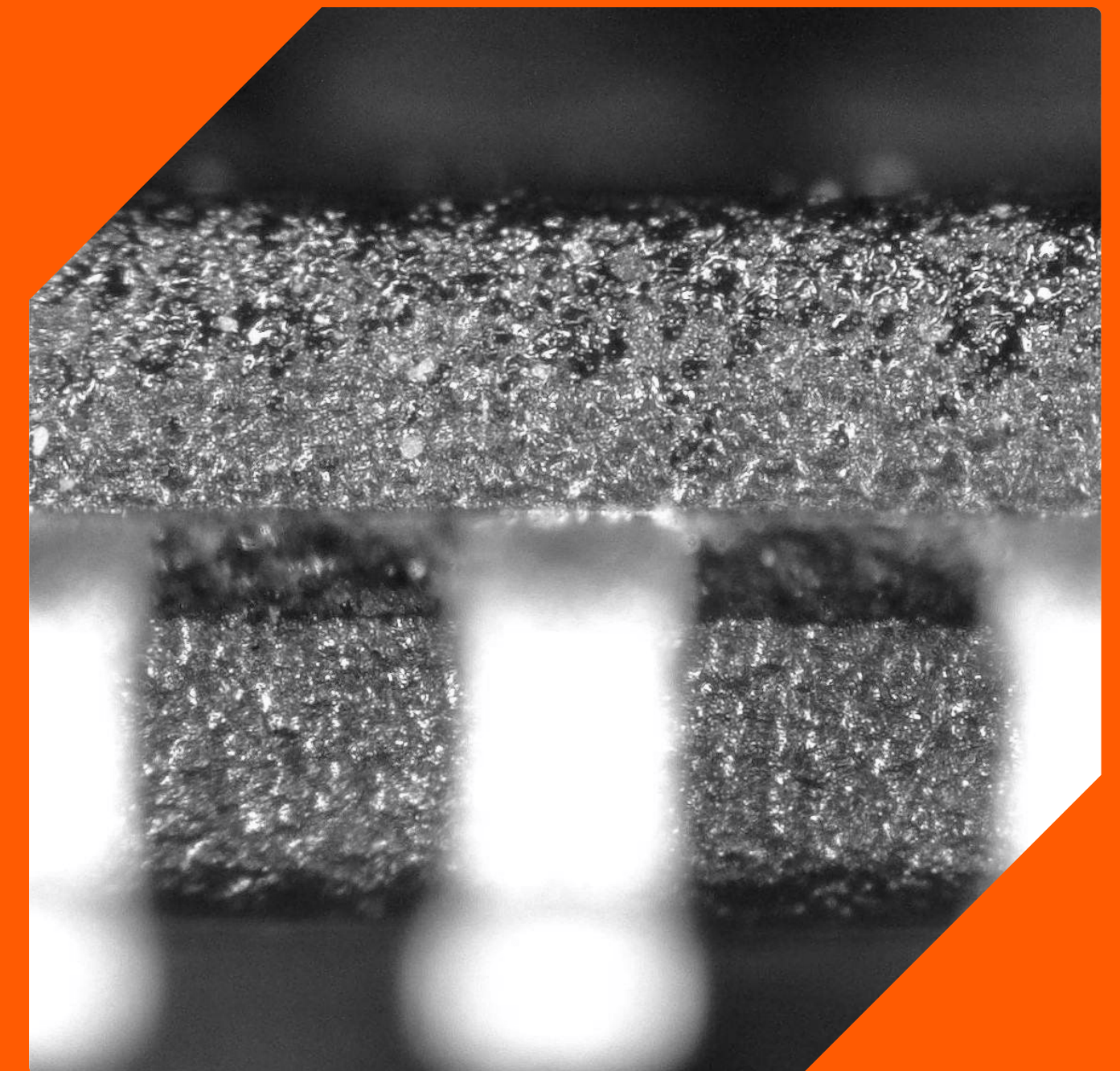
## 3D Profile Mapping

3D mapping for depth analysis.



## BGA Inspection and Measurement

Immersive BGA analysis.



## Fully Automated System

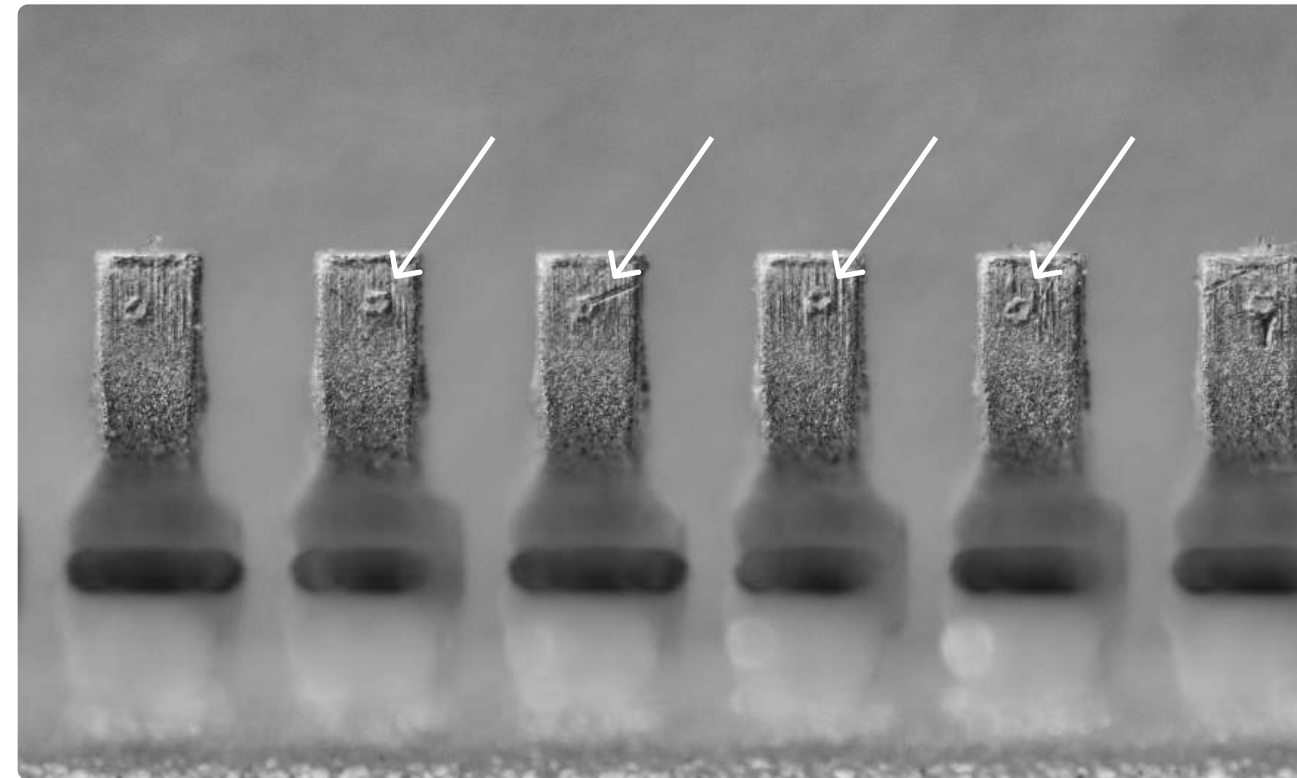
High magnification, high resolution image quality.



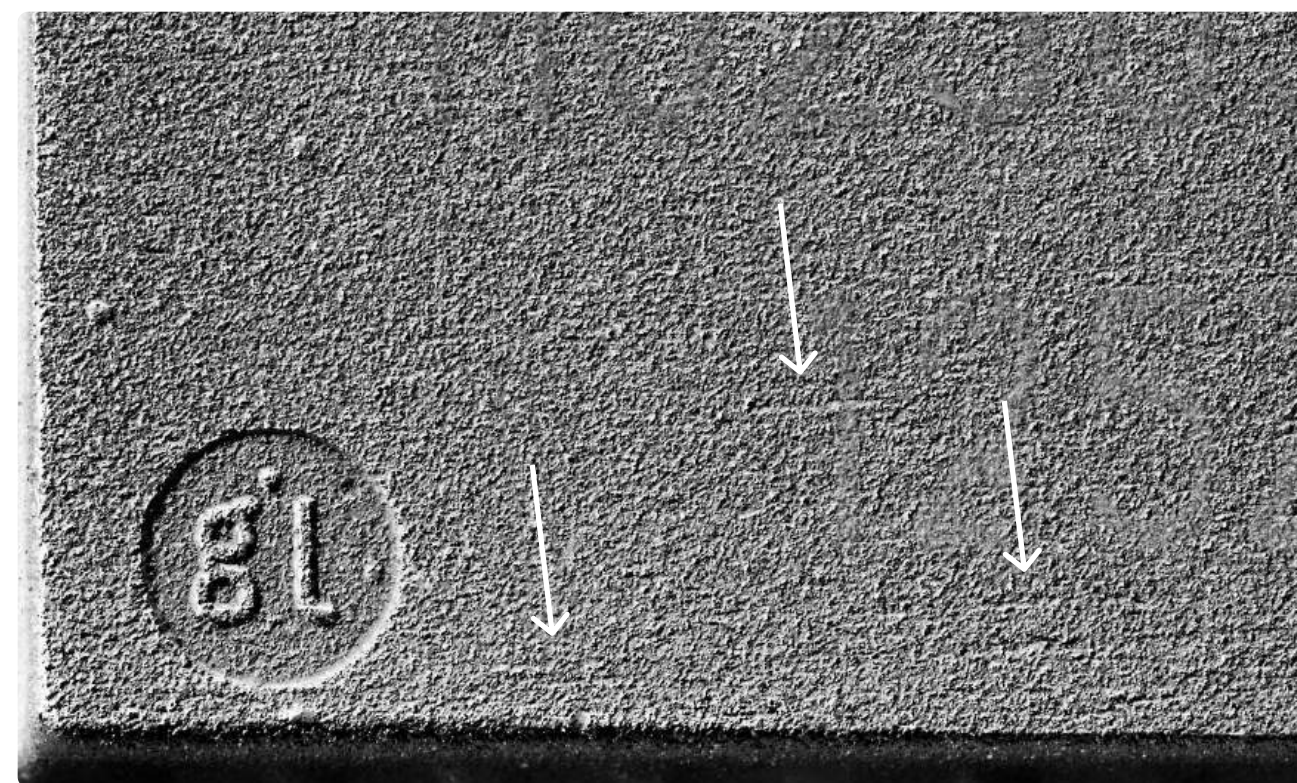
# ■ KEYENCE VHX – 7000

## Optical Shadow Effect

Specially designed high-resolution lenses, a 4K CMOS sensor, and high-performance lighting allows for analysis of minute surface details.



Reveals anomalies not seen with regular microscope.



Sanding marks indicate potentially resurfaced parts.

# MARKING PERMANENCY TEST

## 3-Parts Mineral Spirits

Used in semiconductor testing to verify the component's logo, part number, date code, lot code, and other potential identifiers.

## 1-Part IPA Solution

The solvent works to remove painted markings often used by counterfeiters.



# MARKING PERMANENCY TEST

Example

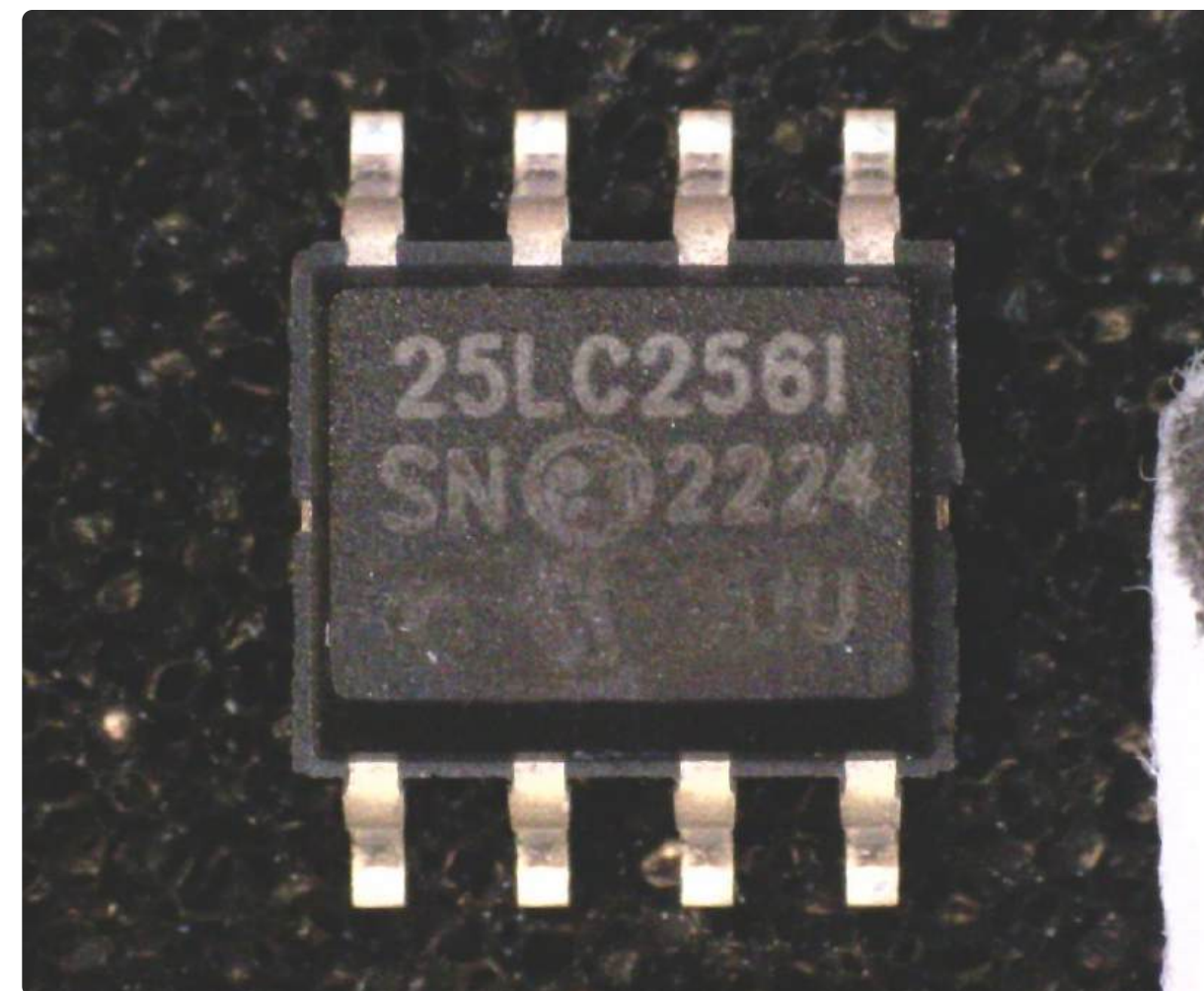
01



Part marking intact after test.

Example

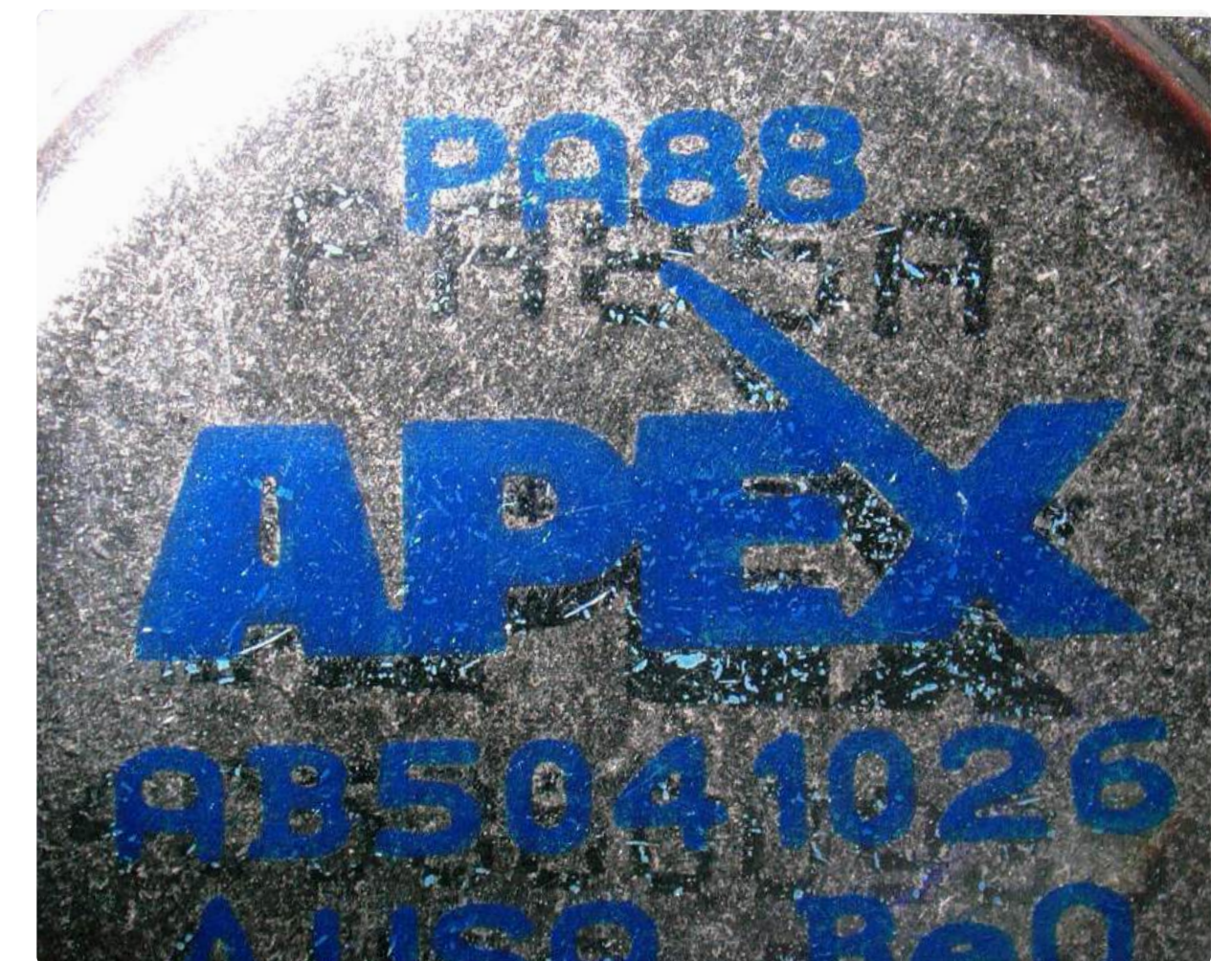
02



Evidence of tampering was observed after test.

Example

03



Parts passed test (re-marking substance was resistance to solvent). However, closer inspection revealed ghost markings.



# RESURFACING TESTS

- Acetone Solvent
- 1-Mentyl - 2-Pyrrolidinone Solvent Test

Used in semiconductor testing, each stage uses different chemicals to attack different types of blacktopping compounds.

- Dynasolve Solvent Test
- Mechanical Scrape Test

Mechanical scrape test can remove counterfeit coatings that are resistant to chemical solvents.



# RESURFACING TESTS

Example

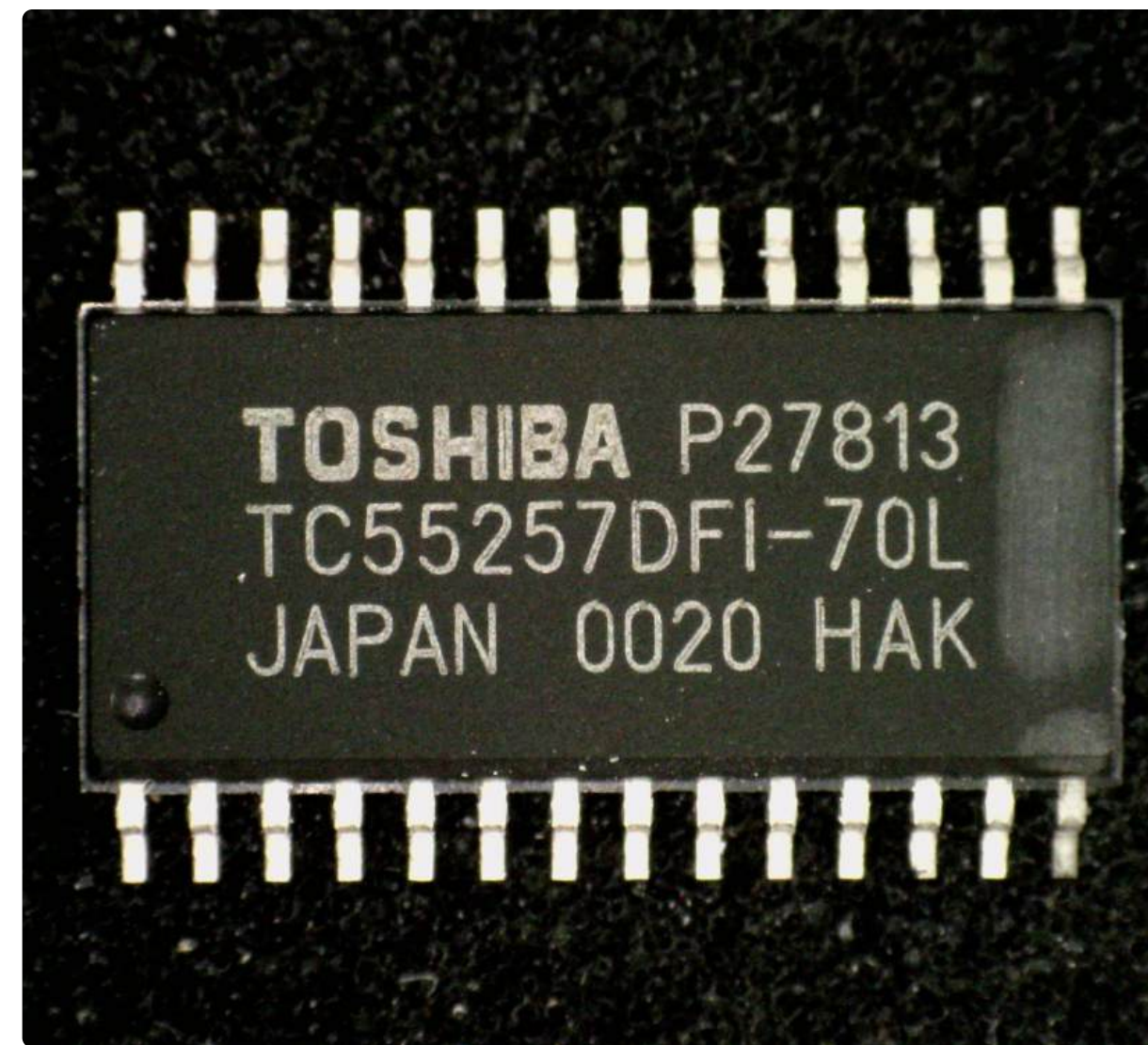
01



Passed acetone solvent test.

Example

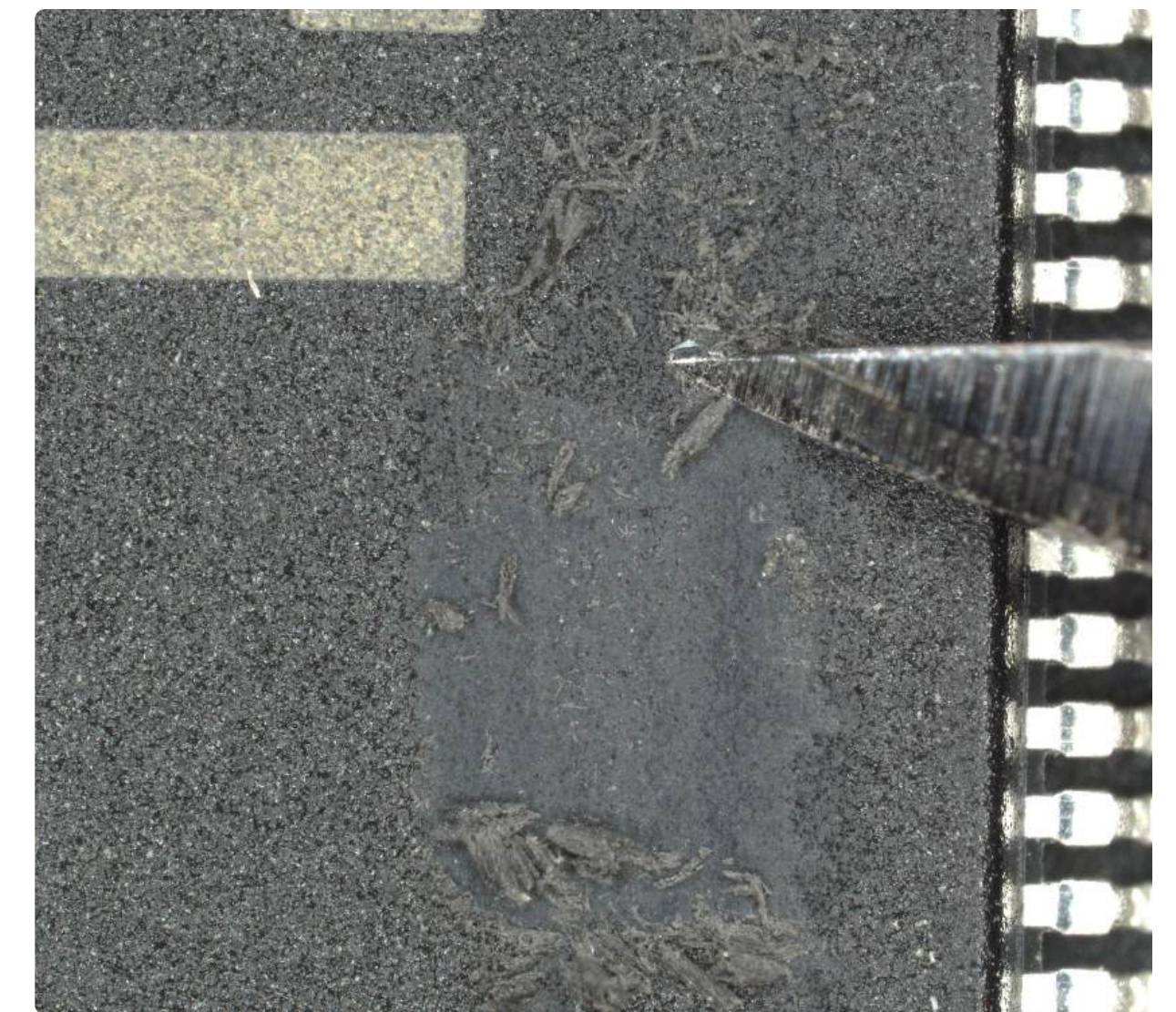
02



Failed acetone solvent test.

Example

03



Mechanical scrape test revealed secondary coating that was resistant to solvent.



# DIMENSIONAL ANALYSIS





# KEYENCE LM 1100

High Accuracy Image Dimension  
Measurement System



$\pm 0.7 \mu\text{m}$

measurement accuracy

$\pm 0.2 \mu\text{m}$

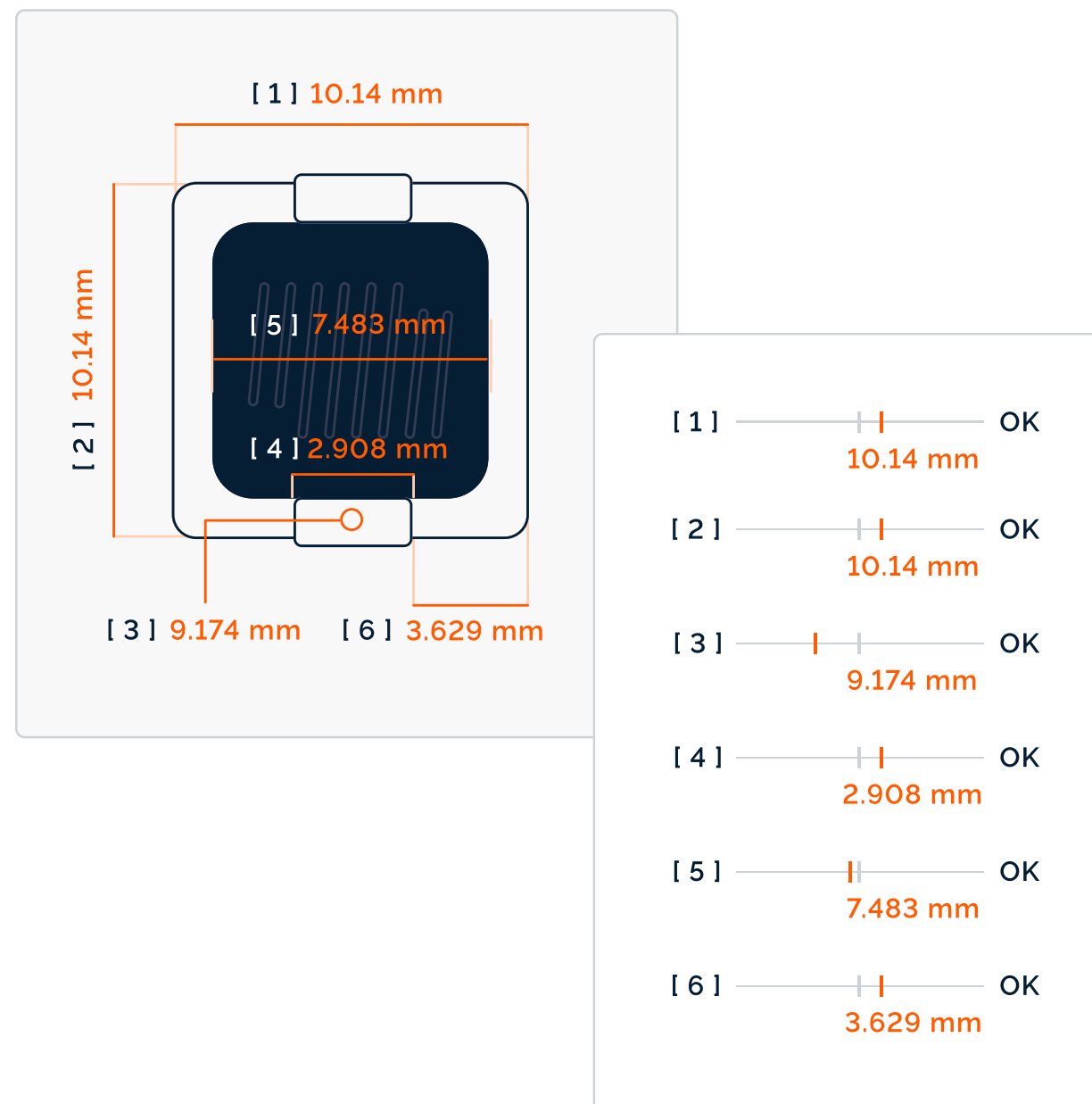
repeatability

Fast measurements for  
quick turn around time





# KEYENCE LM 1100



Automatically performs measurements using pre-set parameters.



Massive dimensional specifications database featuring top industry manufacturers.



Quickly detects anomalies and potential counterfeits.



# XRF MATERIAL ANALYSIS





# ■ THERMO SCIENTIFIC NITON XL3T XRF ANALYZER

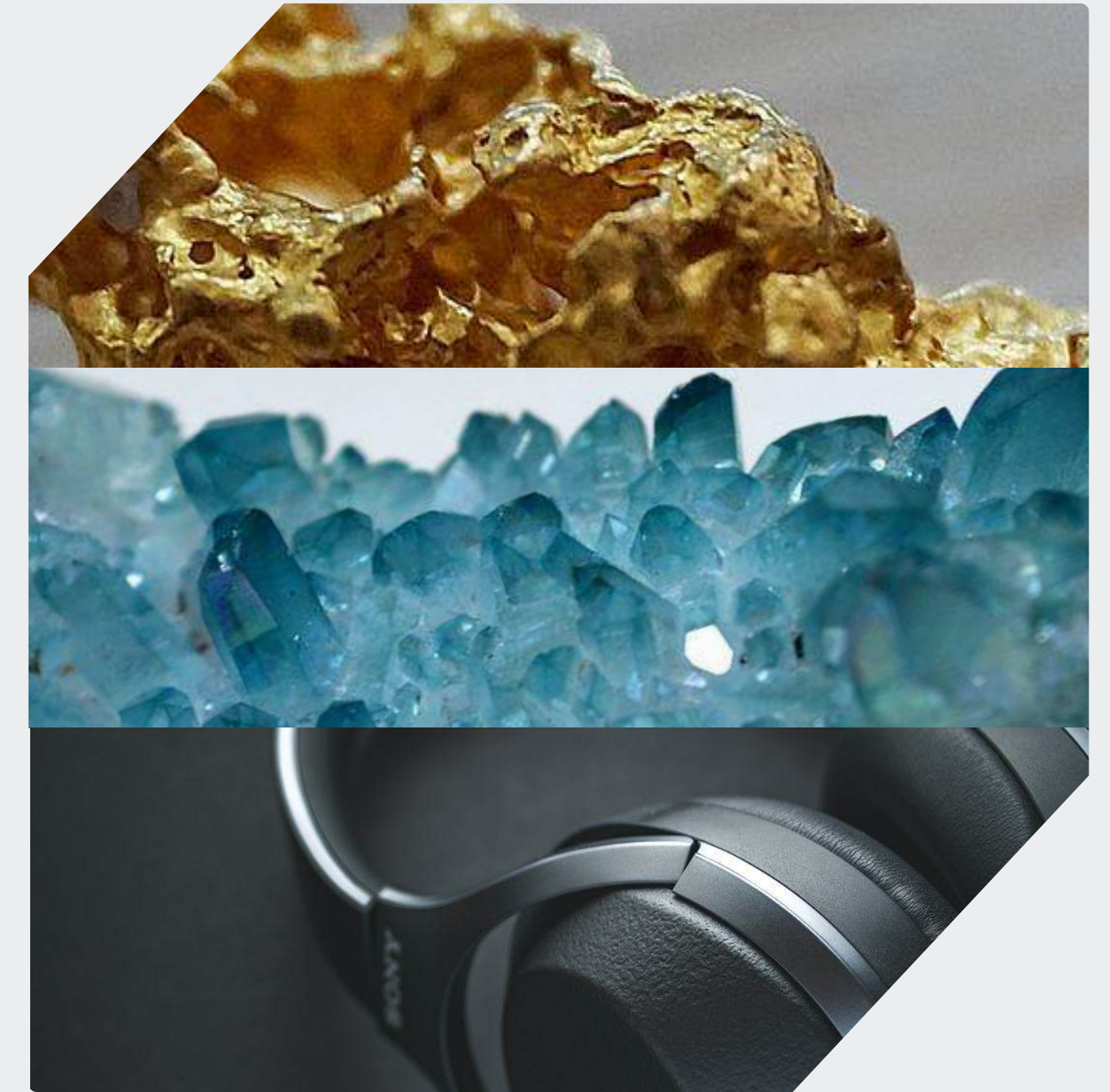


## Non-destructive

Material composition analysis verifies authenticity without compromising the product.

## Real-time testing

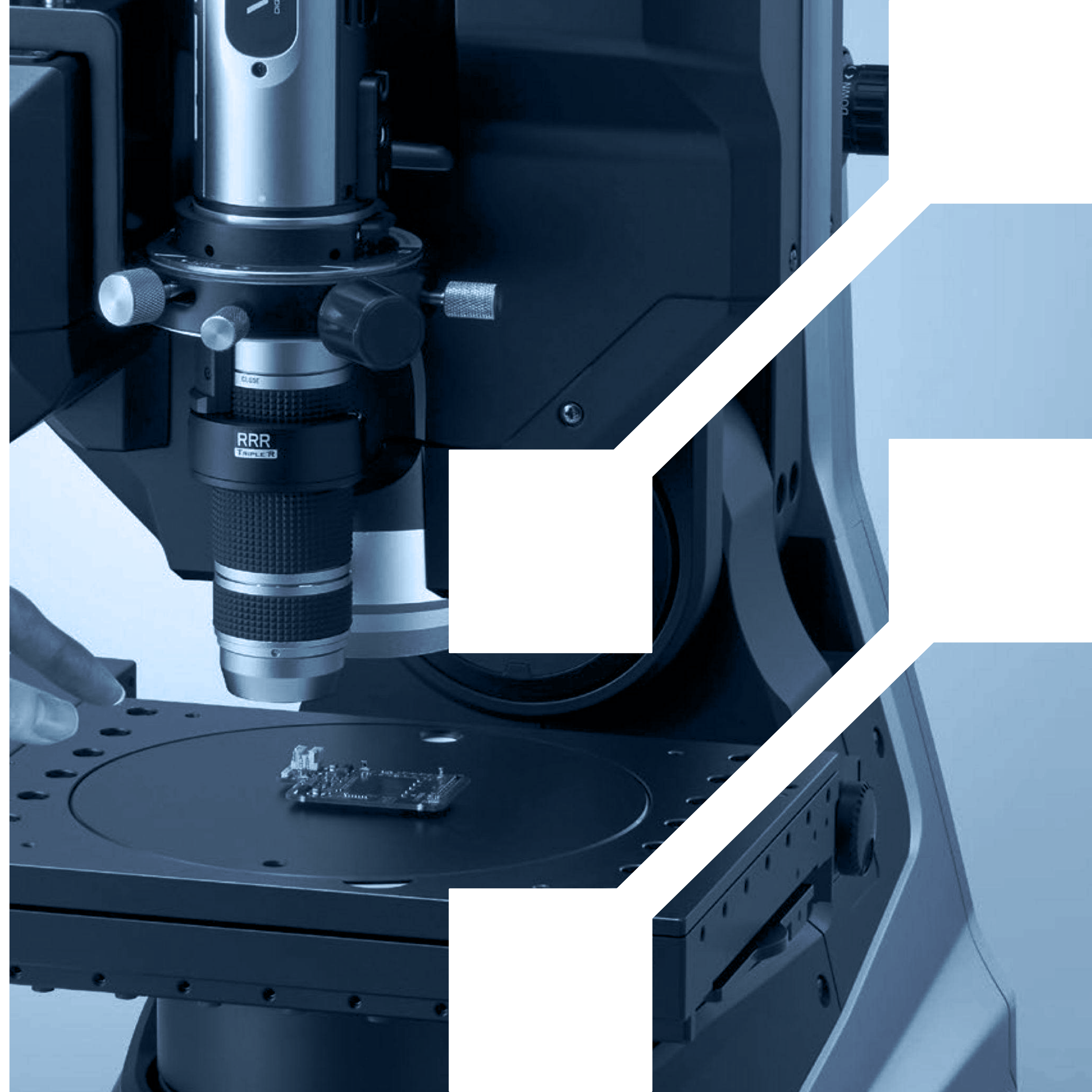
Comprehensive results to streamline incoming/outgoing inspection.



Broad range of applications, including metal analysis, mining and geology, and consumer products.



# ELEMENTAL ANALYSIS



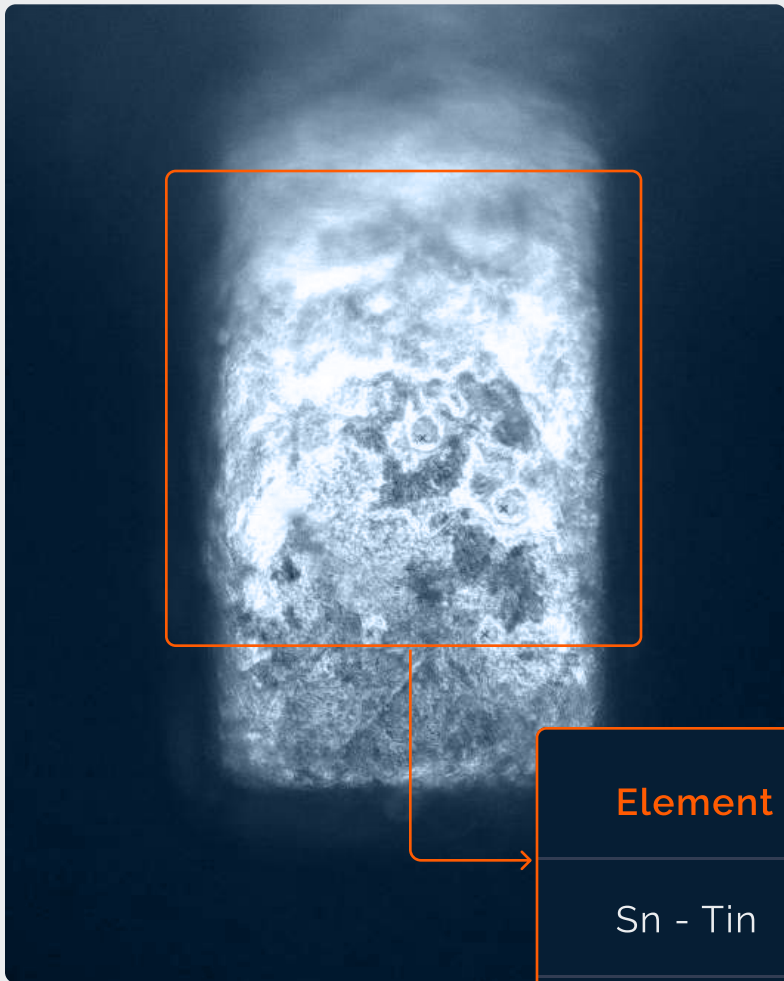


KEYENCE EA-300

Laser-induced Breakdown Spectroscopy (LIBS)



Laser-based analyzer with pinpoint analysis of surface materials.



Element	wt %
Sn - Tin	88.8%
Cu - Copper	8.7%
K - Potassium	1.5%
Si - Silicon	1.0%

Powerful, non-destructive tool for enhancing material analysis.

## XRF VS LIBS

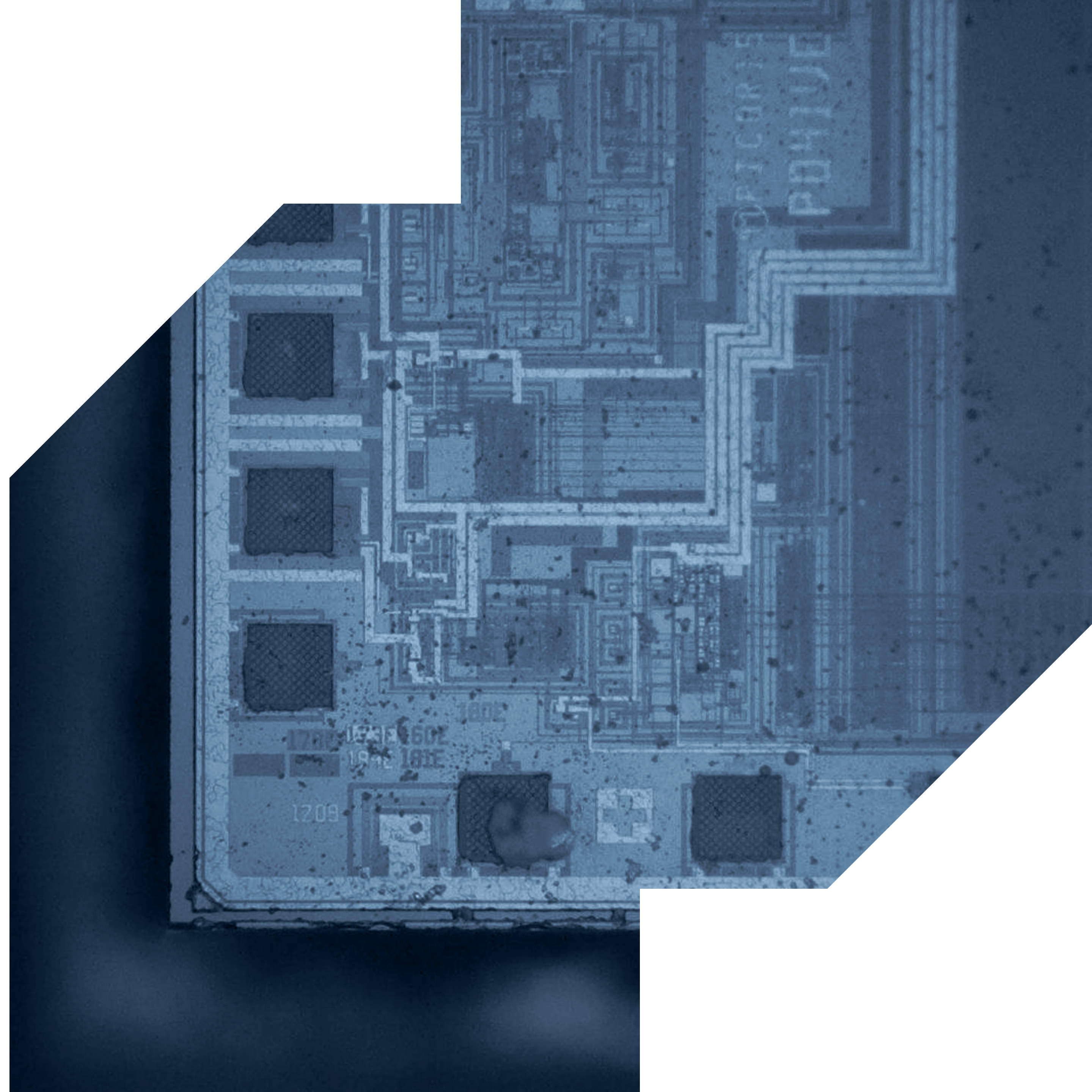
X-ray fluorescence (XRF) determines the chemical composition of a sample by measuring the fluorescent (or secondary) X-rays emitted when the sample is excited by a primary X-ray source

Laser induced breakdown spectroscopy (LIBS) uses a laser to ablate the surface of a sample, creating a plasma composed of electronically excited atoms and ions. As these atoms transition back to their ground states, they emit characteristic wavelengths of light (or fingerprints) unique to each element.

Vyrian utilizes both methods to ensure thorough and comprehensive material analysis.

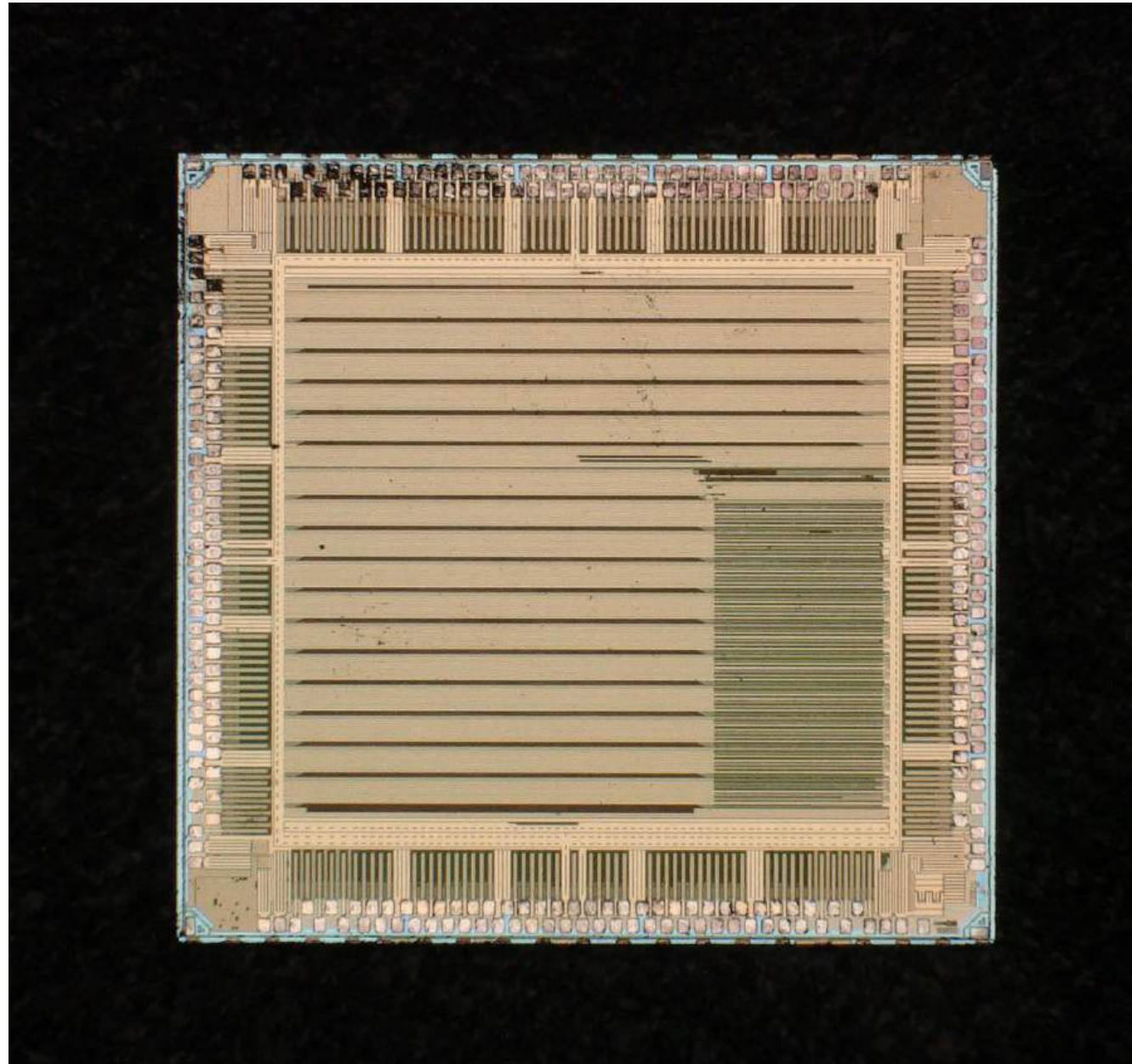


# DELID AND DECAPSULATION PHYSICAL ANALYSIS





# ■ DELID AND DECAPSULATION PHYSICAL ANALYSIS



## Internal Physical Analysis

High resolution microscopy of die attribute and construction to identify counterfeit material.



## Chemical Etching

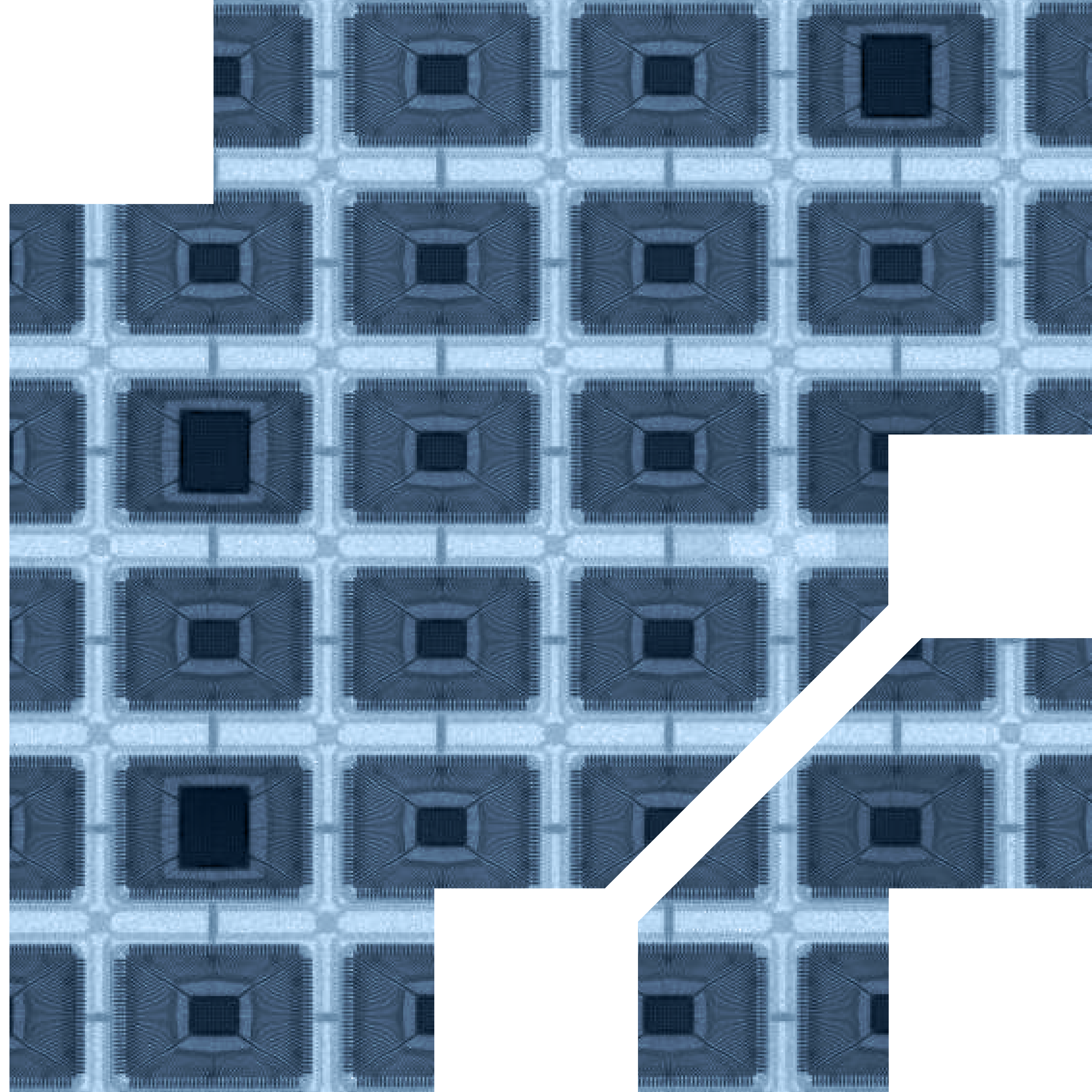
Chemical etching in controlled environment reveals die for analysis.



## Mechanical Milling

Precision drilling to expose die cavity without damaging bond wires.

# RADIOLOGICAL INSPECTION





# CREATIVE ELECTRON TRUVIEW PRIME



Powerful X-ray inspection system with high quality live images.

Automatic reel-to-reel inspection for comprehensive assessment.

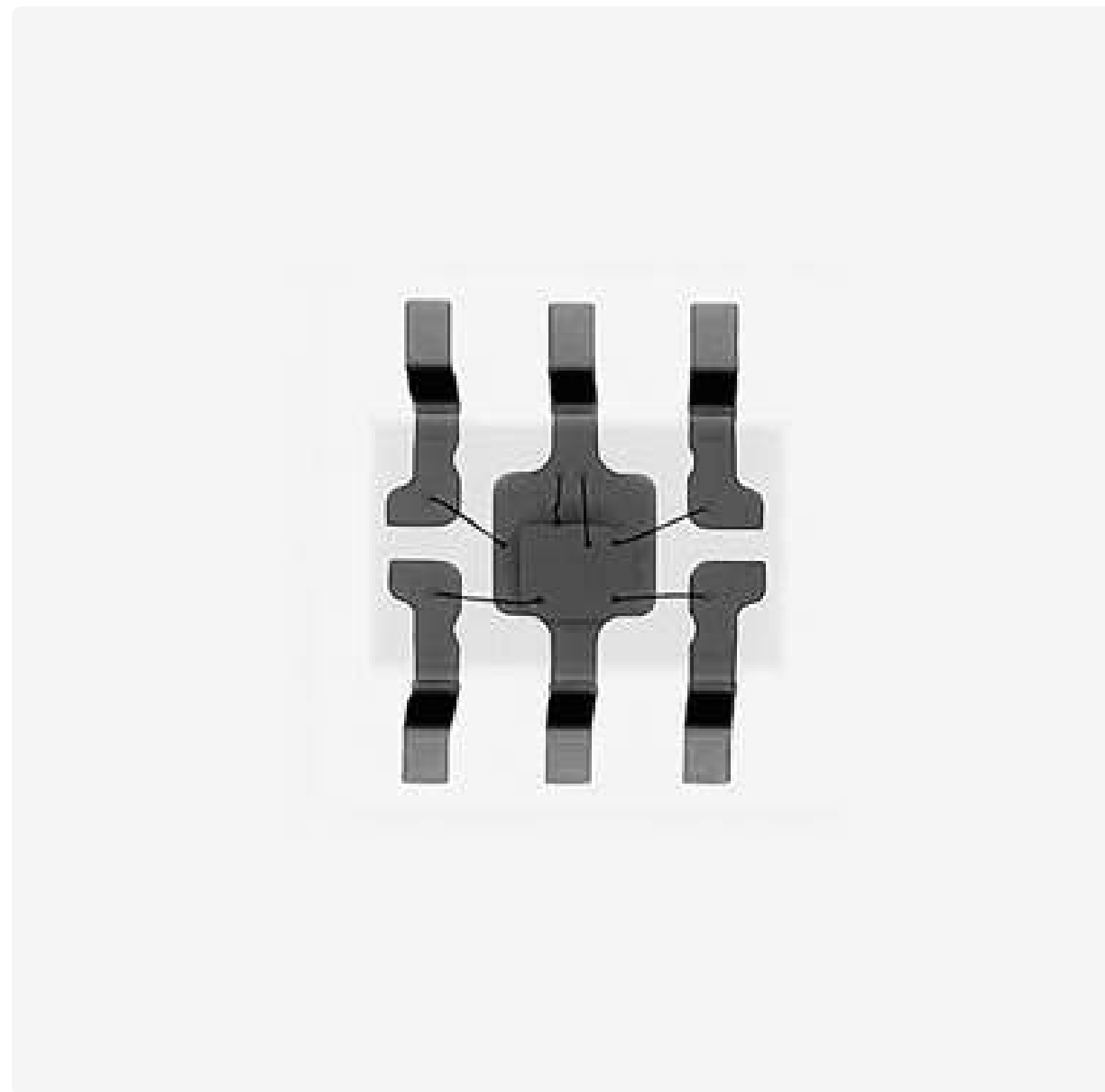
Fully viewable 12" x 14" sample table.



# CREATIVE ELECTRON TRUVIEW PRIME

Example

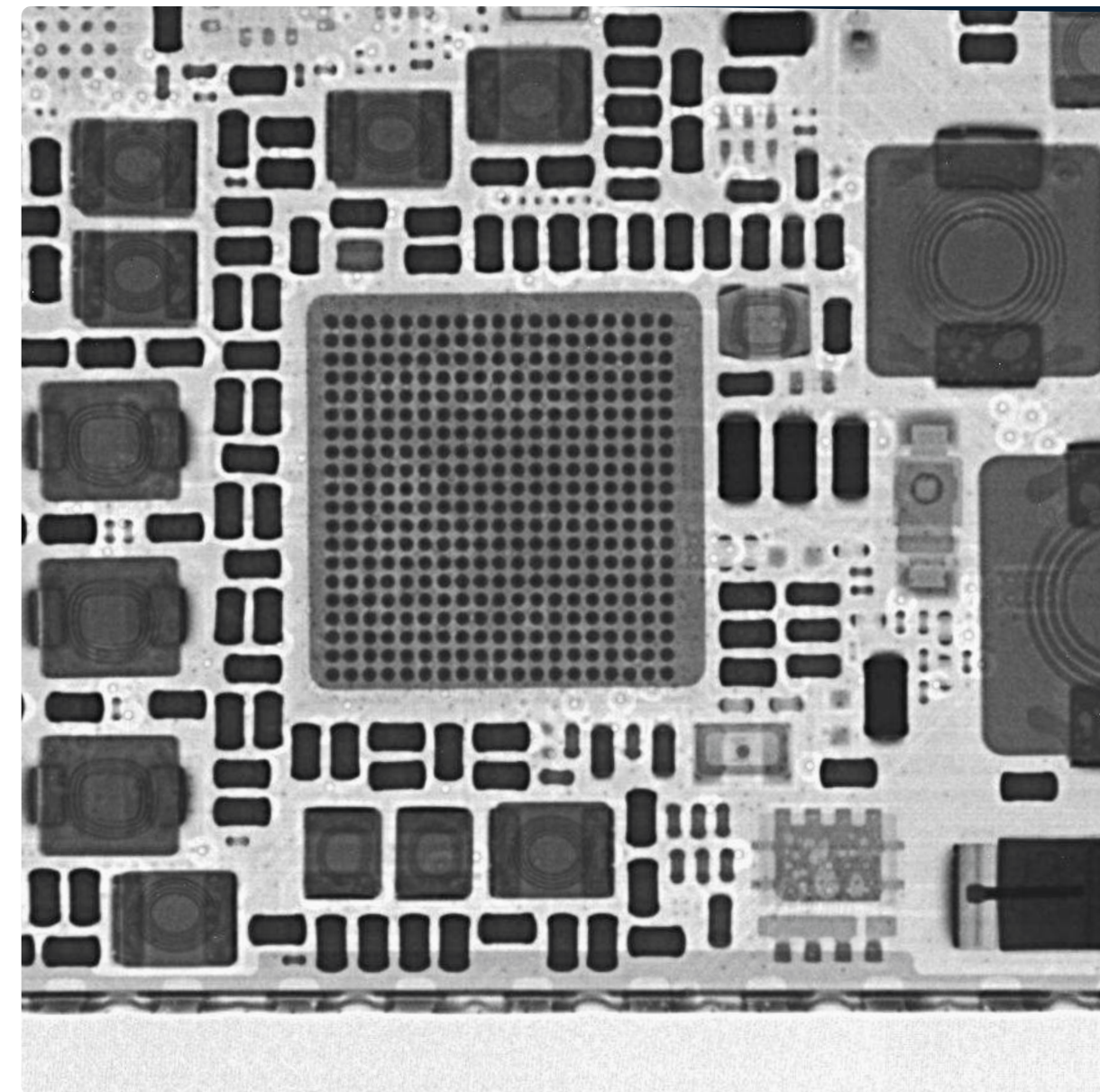
01



Broken bond wire detected.

Example

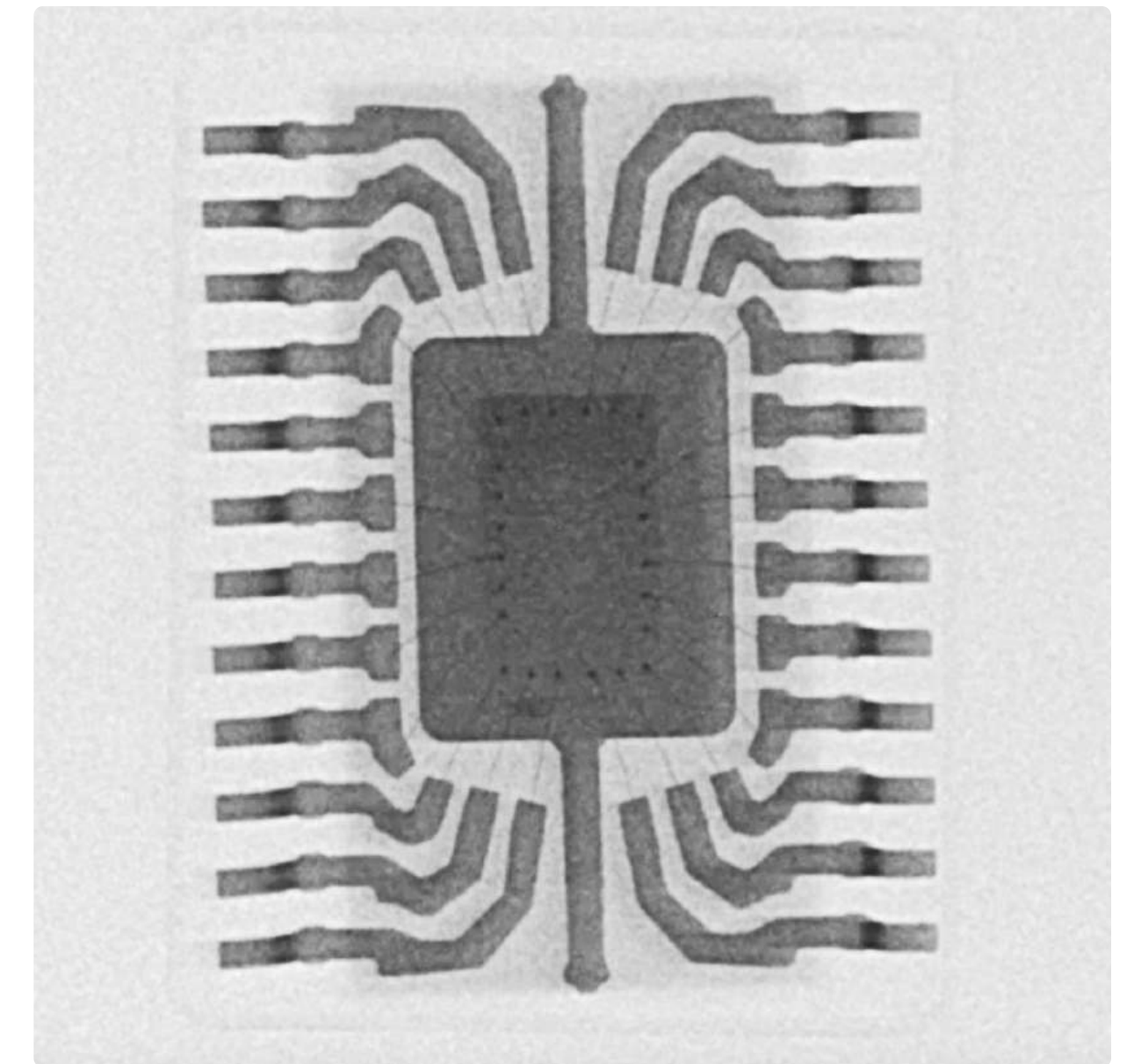
02



Section of an iPad.

Example

03



Reel to reel function designed for counterfeit detection.

# CREATIVE ELECTRON TRUVIEW PC2 PARTS COUNTER

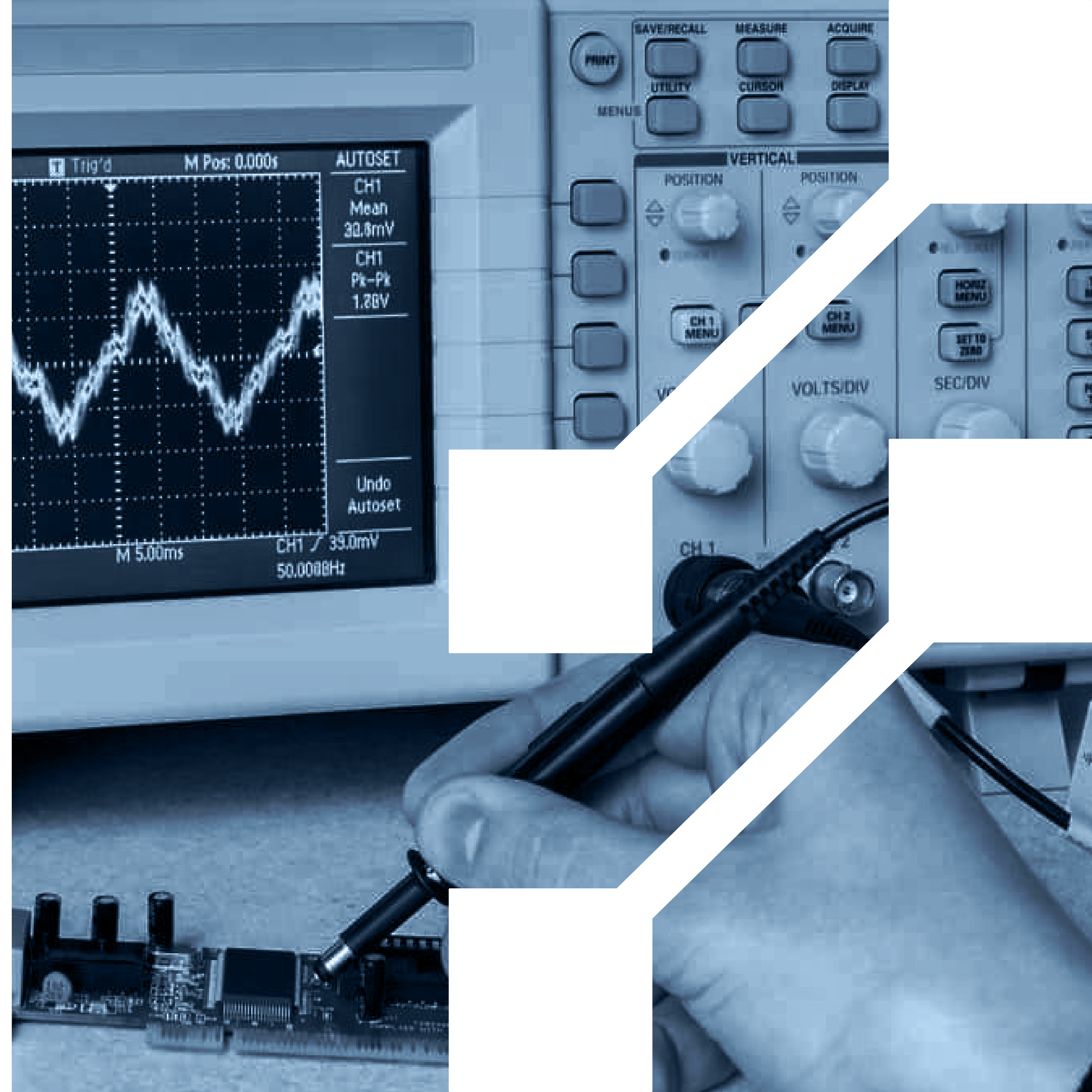


Artificial Intelligence engine accurately counts reels, trays, tubes, and cut tapes.

Delivers faster and more accurate performance than traditional reel counters.

Any anomalies in part size or positioning are quickly identified.

# ELECTRICAL TESTING





# ELECTRICAL TESTING



Hioki IM3536  
LCR Meter



BK Precision 894  
LCR Meter



Keysight Precision  
Source Meter



Electrical parameter  
testing to 0.05%  
accuracy.



Voltage  
withstand  
testing.



High precision, high-speed measurements  
for robust quality control.



SOLDERABILITY





# ■ SOLDERABILITY



## HENTEC Photon

Steam age preparation replicates the effects of long-term storage.

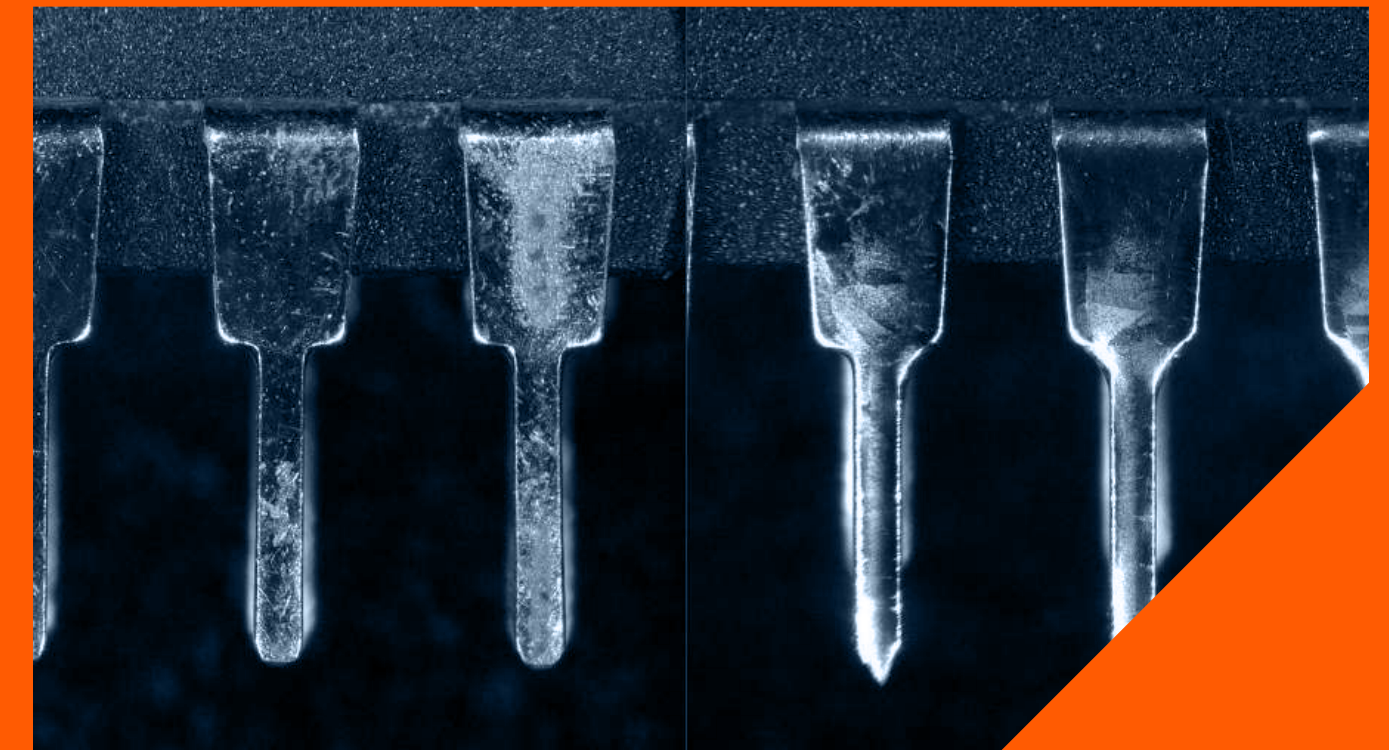
Steam aging plated samples accelerates degradation through both intermetallic growth and surface oxidation.



## HENTEC Pulsar

Dip-and-look solder test

The dip-and-look test, conducted in a controlled environment, ensures proper adhesion of solder to the leads in the next level of assembly.



## Custom adapters

Designed to accommodate any type of component.

Supports lead and lead-less components, lugs, terminals, wires, etc.



#### Website

Go to [vyrian.com](https://vyrian.com)



#### Address

3931 Ann Arbor Dr.  
Houston, Texas 77063

#### Lab Hours

Mon – Fri 8:00 AM – 5.00 PM  
Sat – Sun Closed