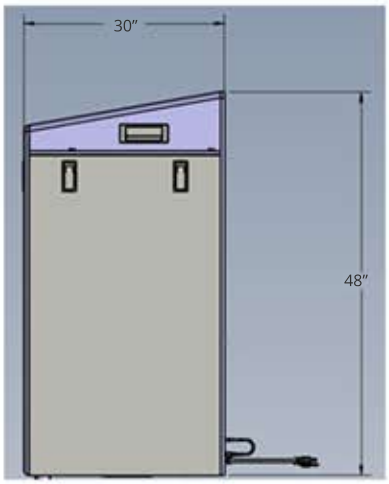
IRQuickScan™

Void Detection System

IRQS
BpT CLARITY PRO ™

Redefining Void Detection with Infrared Intelligence

200 mm IRQS System

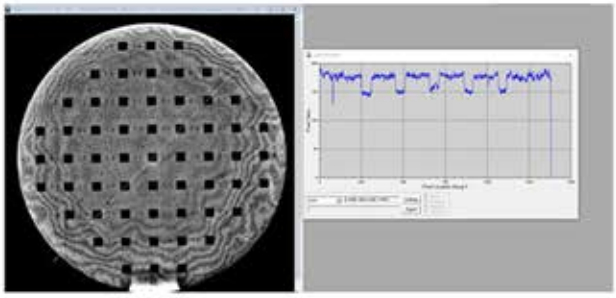


300 mm IRQS System

The next-generation Infrared Quick Scan™ (IRQS) System, powered by BPT Clarity Pro™ Software, delivers unmatched accuracy in detecting voids, inclusions, and strain fields across bonded wafers and advanced substrates.

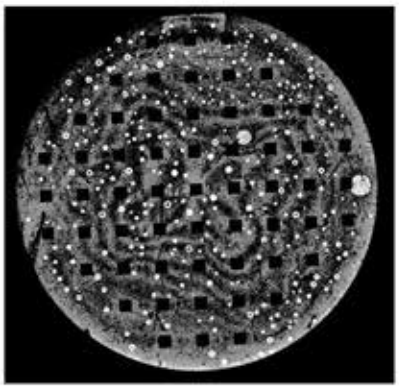
Advanced Infrared Detection Meets AI Precision

The IRQuickScan™ (IRQS) System utilizes a newly developed, proprietary infrared detection scheme coupled with the powerful Clarity Pro™ Software platform to rapidly characterize a wide variety of substrates for internal defects.

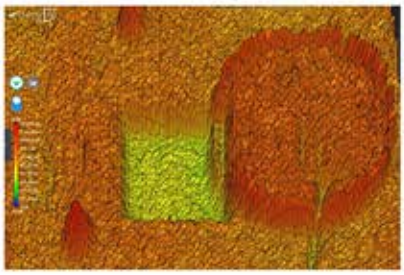


With its AI-driven Clarity Pro engine, the IRQS System:

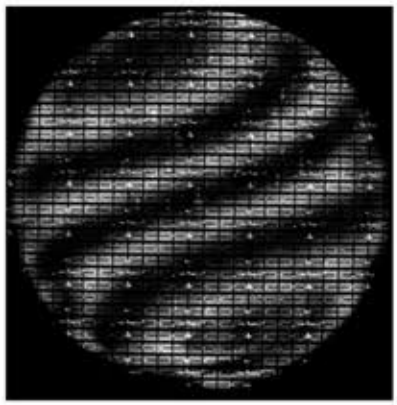
- Images bonded wafers instantly and delivers a comprehensive defect analysis.
- Locates and classifies defects such as voids, inclusions, and strain fields.
- Generates a KLARF-like ClarityRF file for seamless review and integration with fab workflows.



Shown here is an IRQS output of a 200mm bonded silicon wafer pair with embedded metal pads, capturing voids, inclusions, and strain fields. Despite embedded metals, the IRQS System precisely maps defects around these pads.



Produces 3D Viewer outputs for in-depth defect visualization. This is an IRQS System 3D Viewer output from the far right side of the same bonded wafer pair showing the details of a metal pad and the large void adjacent to it. It should be noted that although metal pads exist within the bonded pair of silicon wafers the IRQS System is able to provide data in and around these pads.



Provides strain field signatures on metallized test wafers, crucial for advanced production monitoring.

Your AI Metrology Company

Why Choose BPT Clarity Pro IRQS?

Outperforms other systems in accuracy & speed

Proprietary IRQS System

View voids clearly with IRQS

Multi-platform software
compatible with SEMI standards

Supports substrates up to 300mm
(open platform design)

Automation customized for throughput & sample size

Clarity Pro software for turnkey solution measurements to SEMI standards

Sub-micron resolution for voids & strain fields

High dynamic range scanning

High pixel resolution for high-detail imaging

Automation ready
for high-throughput fab environments

BOLTS configuration
for attachment to any EFFEM or process tool

Full wafer scan with 2–3 mm edge exclusion

KLARF-like file outputs
for precise location review

Turnkey recipe setup software
for quick deployment

Lowest cost

Patented Imaging Technology with AI at its Core

At BPT, the guiding principle behind our design is ease of use without compromise on innovation. Starting with our proprietary imaging technology, we built a system capable of producing results unmatched by conventional methods. By integrating BPT Clarity Pro IRQS™ Software's AI capabilities, we've created a solution that:

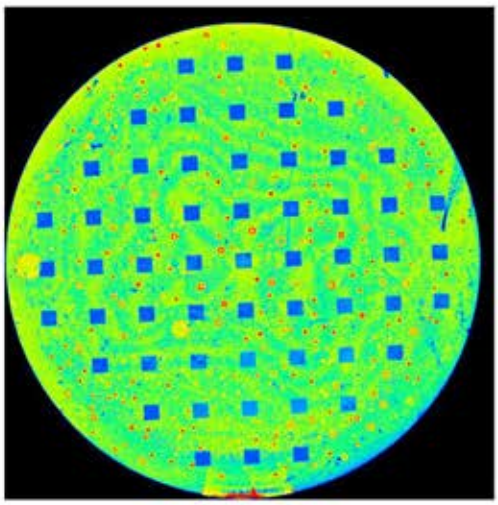
With its AI-driven Clarity Pro engine, the IRQS System:

- Detects and classifies previously unseen defects.
- Provides real-time, non-destructive inspection without ultrasonic imaging.
- Delivers a turnkey solution aligned with SEMI standards.
- Scales from R&D labs to full-scale production fabs.

Proprietary Imaging Technology

The IRQS System sets a new benchmark for void detection and wafer analysis—empowering semiconductor manufacturers to achieve greater reliability, yield, and efficiency.

Technology	Lateral Resolution	Inspection Time	Inspection Area
Acoustic	>5um	2-8 minutes	whole wafer
X-ray	>10um	>1 hour	whole wafer
Magic Mirror	>1mm	3 minutes	whole wafer
TEM	>1nm	>1-3 days	1x1mm^2
IR (other)	>250um	3 minutes	whole wafer
IRQS	<1um	<10 seconds	whole wafer



The BPT Clarity Pro IRQS System can produce a variety of visual enhancements so that previously unseen defects can be accurately identified, located, and classified. No other system offers this capability, especially without the need to subject wafers to ultrasonic imaging.