

XGT-9000

μXRF Analytical Microscope



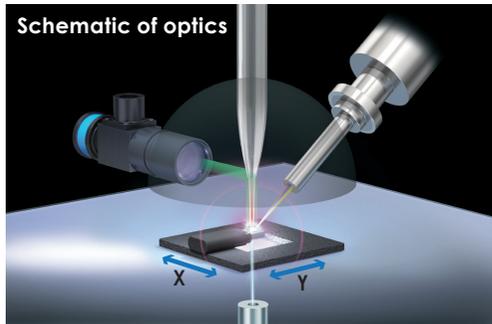
Look Below The Surface



Screen, Check, Map and Measure

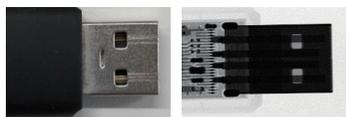
What is the XGT-9000?

The XGT-9000 is an X-ray Fluorescence Analytical Microscope, which provides non-destructive elemental analysis of materials.

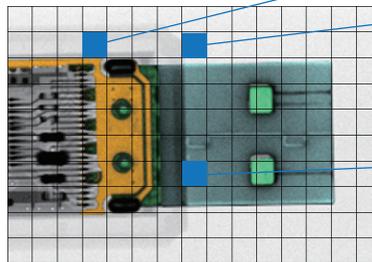


- 1 Incident X-ray beam is guided towards the sample placed on the mapping stage.
- 2 X-ray fluorescence spectrum and transmission X-ray intensity are recorded at each point.
- 3 Information available: Qualitative & quantitative elemental analysis/Mapping/Hyperspectral imaging.

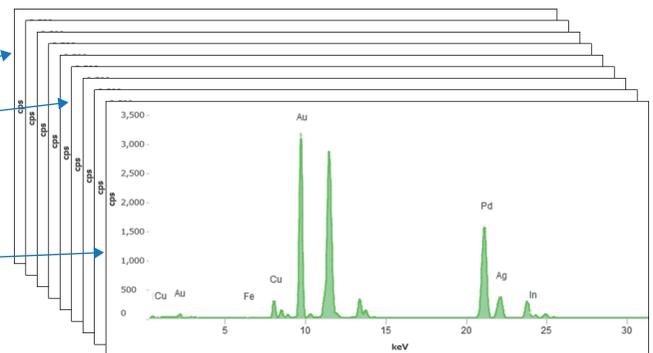
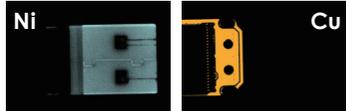
Optical image Transmission image



Layered image



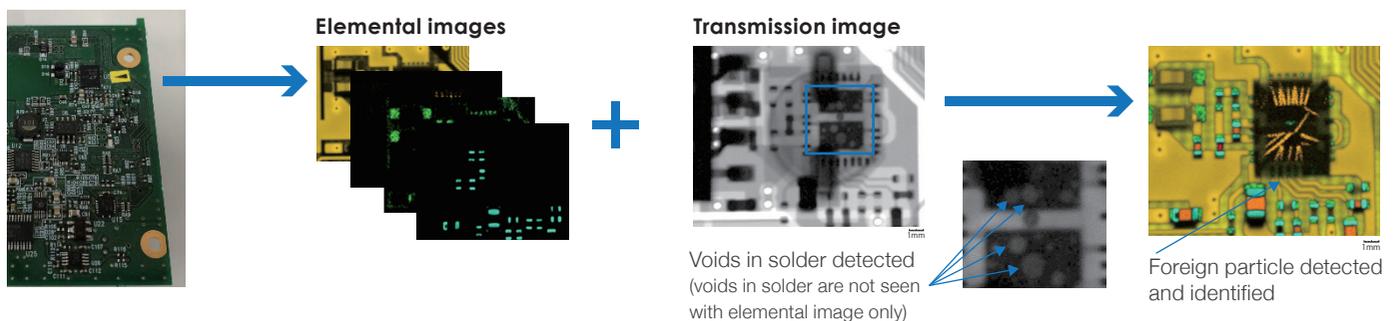
Elemental images



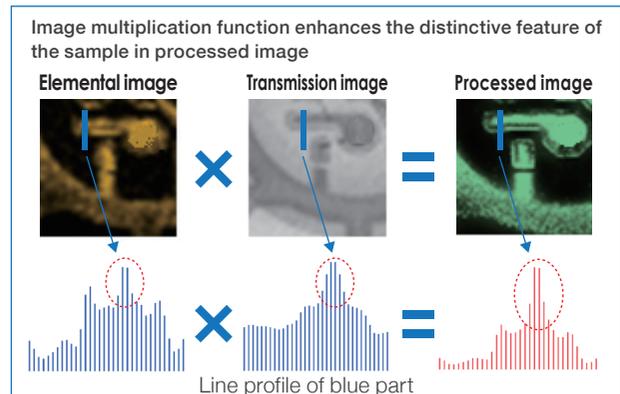
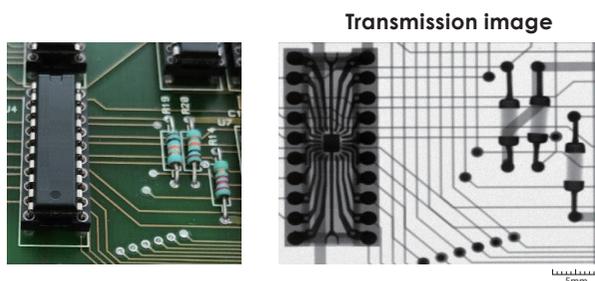
Screen, check, map and measure

Electronics failure analysis

The combination of elemental images and transmission images allows one to detect hidden defects.



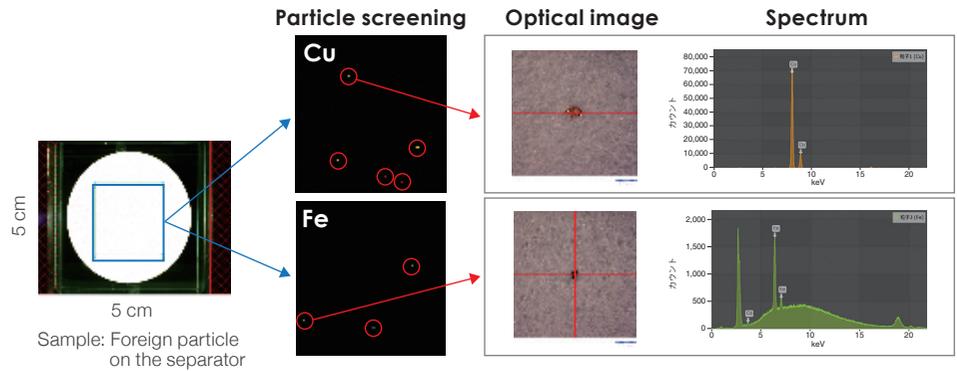
Large working distance and coaxial vertical optics provide a clear transmission image without the shadow effect in undulating electronic boards.



XGT-9000 with a wide range of applications

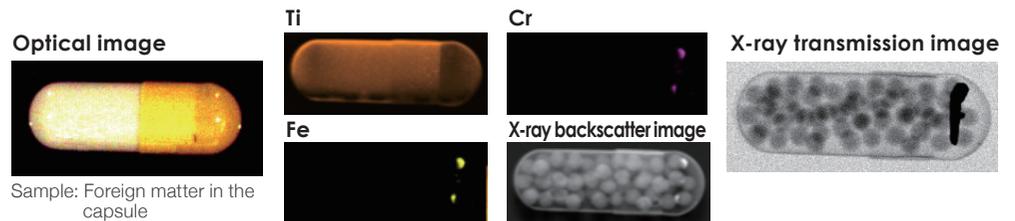
Film/Battery: Particle analysis

The XGT-9000 can detect and determine the composition of foreign particles, and therefore track the source of contamination.



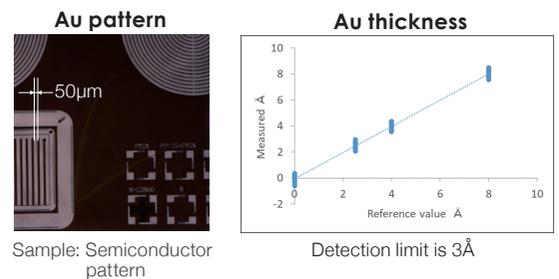
Pharmaceutical: QC, counterfeit products, presence of foreign materials.

X-ray Fluorescence photons can be partially absorbed by the encapsulated material and will not show in the spectrum. The X-ray transmission image provides a complete picture.



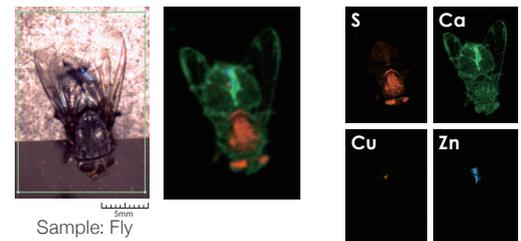
Semiconductor (Thickness measurement)

The combination of microbeam and thickness measurement capability makes the XGT-9000 a useful tool for the QC of semiconductors, which feature thin and narrow patterns. Thickness sensitivity depends on elements traced, but can be at the Angstrom level.



Biological samples

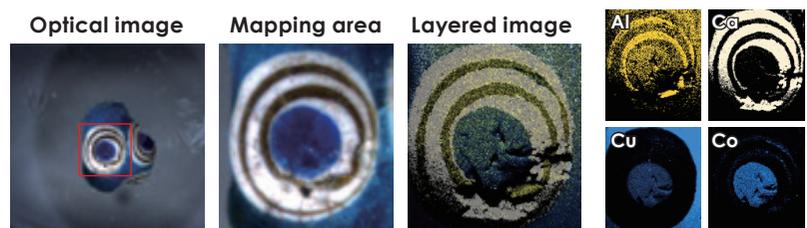
Biological samples contain water or gas, and will be heavily modified or damaged if measured in a vacuum. The unique partial vacuum mode of the XGT-9000 keeps the sample in ambient conditions while the detection is in a vacuum for optimum light elements measurement.



Archaeology (Non-destructive analysis)

Archeological artifacts are valuable materials and can only be analyzed by non-destructive methods.

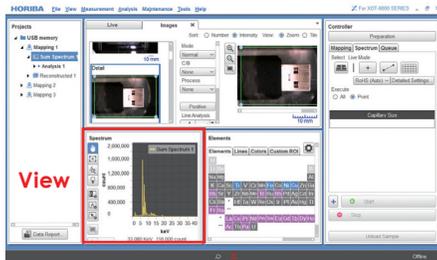
Dragonfly eye: XGT-9000 measurement has helped to ascertain the Dragonfly eye found in China actually originated Egypt/Middle East during the 2nd century B.C.



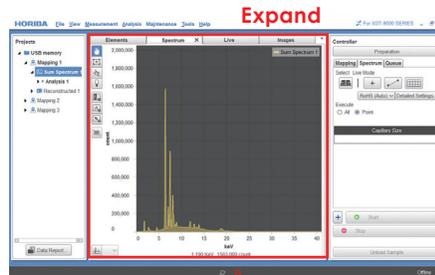
XGT-9000 Software Suite

Simple and rich GUI/Customizable windows/Advanced functions

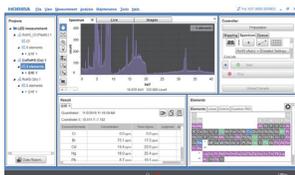
The user interface offers a flexible way to measure multiple samples or areas in unattended mode (queue function), display the analytical results, present the data, and edit reports. Advanced treatments include image processing, particle finder, colocalization measurement and multivariate analysis (refer to "Combination of XRF and Raman Spectroscopies").



Standard GUI



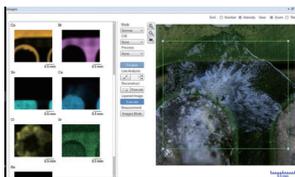
Edited GUI



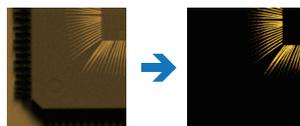
RoHS mode GUI



Result list view



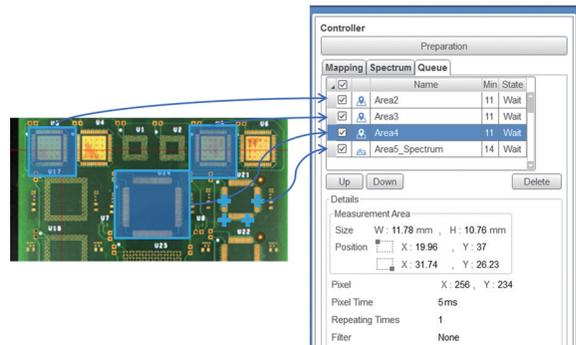
Floating view



Raw image

Processed image

Image processing for mapping

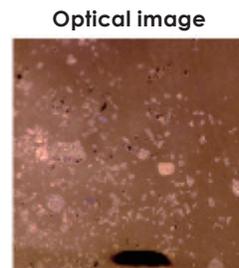
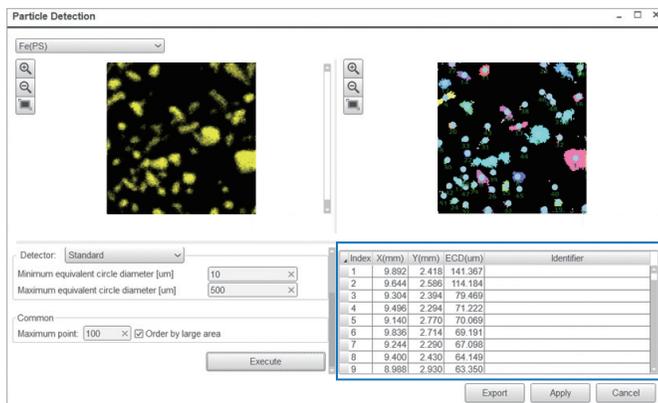


Queue function

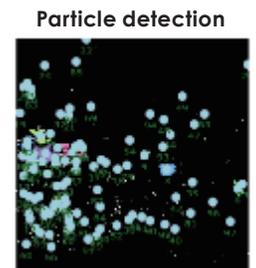
Multiple measurements including mapping /multi points

Particle finding function

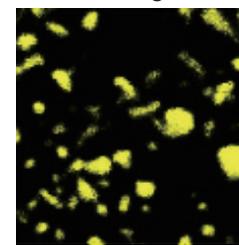
The particle finding function is available from all the 3 images in the XGT-9000 (Optical, Fluorescence X-ray and Transmission). The particle finding function automatically detects particles and marks their position for multi-point measurement, classification and analysis.



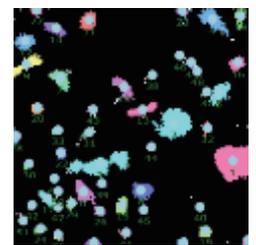
Optical image



Particle detection



Fe image



Particle detection

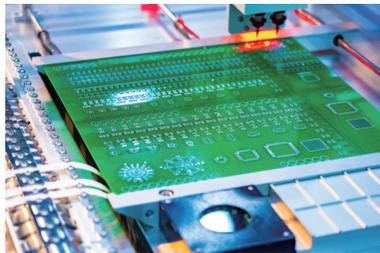
Coordinates of detected particles are automatically stored and transferred to the multi-point analysis mode

XGT-9000 μ XRF Analytical Microscope

Do more with your HORIBA XRF

XGT-9000SL

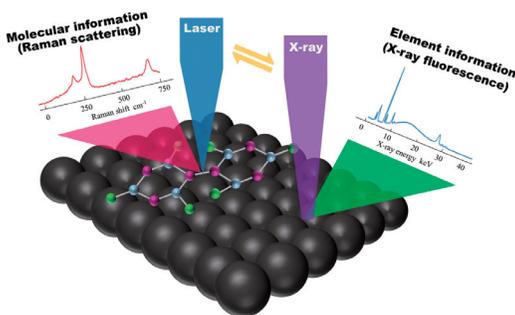
The XGT-9000SL provides a non-destructive analysis of your most valuable pieces, which may be large or fragile.



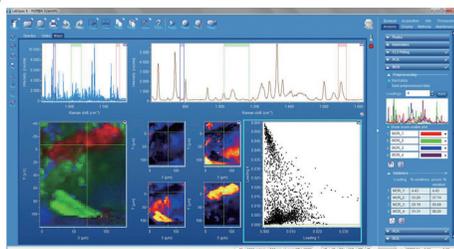
* The sample chamber of the XGT-9000SL complies with the radiation safety requirement. The sample is measured in ambient conditions, while the detector operates at ambient or vacuum modes.

Combination of XRF and Raman Spectroscopy

- ◆ XRF and Raman spectroscopies are complementary techniques.
- ◆ XRF provides information about elemental composition of the material, whereas Raman spectroscopy offers molecular information.
- ◆ Co-localized measurements between the XGT-9000 and HORIBA Raman spectrometers provide more information about the sample.
- ◆ Transfer of the XGT-9000 data to the advanced LabSpec Suite software using LabSpec link.



Combination of XRF



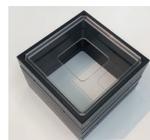
LabSpec link

Sample holders

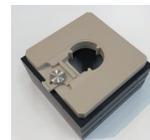
Various sample holders are provided to fit different shapes and types of samples. Fast and easy change between holders with HORIBA's modular stage design.



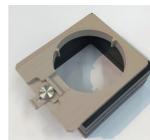
9 samples



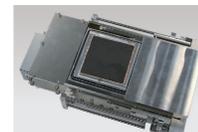
Low background



For 2" wafers



For 4" wafers



Transfer vessel:
Measurement of samples isolated from air

HORIBA XRF family



MESA-50 series

Elemental analysis and RoHS characterization



SLFA series

The reference instrument for sulfur-in-oil analysis

Customization examples



In/On-line solutions

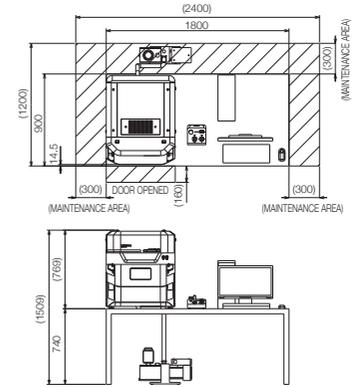
Real time analysis for thickness and composition

XGT-9000 Specification

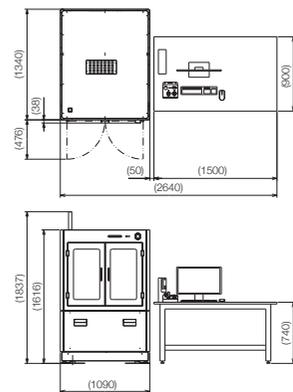
Model	XGT-9000	XGT-9000SL
Basic information		
Instrument	X-ray fluorescence analytical microscope	
Sample type	Solids, Liquids, Particles	
Detectable elements	F-Am	
Chamber size	450(W) x 500(D) x 80(H)	1030(W) x 950(D) x 500(H)
Maximum sample size	300(W) x 250(D) x 80(H)	500(W) x 500(D) x 500(H)
Maximum mass of sample	1 kg	10 kg
Optical observation	Two high resolution cameras with objective lens	
Optical design	Vertical-Coaxial X-ray and Optical observation	
Sample illumination/observation	Top, Bottom, Side illuminations/Bright and Dark fields	
X-ray tube		
Power	50 W	
Voltage	Up to 50 kV	
Current	Up to 1 mA	
Target material	Rh	
X-ray optics		
Number of probes	Up to 4	
Primary X-ray filters for spectrum optimization	5 positions	
Detectors		
X-ray fluorescence detector	Silicon Drift Detector (SDD)	
Transmission detector	NaI(Tl)	
Mapping analysis		
Mapping area	100 mm x 100 mm	350 mm x 350 mm
Step size	2 μ m	4 μ m
Operating mode		
Sample environment	Full vacuum / Partial vacuum / Ambient condition	Partial vacuum / Ambient condition* * Detectable elements for SL version are from Na to Am

Dimensions (Unit: mm)

XGT-9000



XGT-9000SL



The HORIBA Group adopts IMS (Integrated Management System) which integrates Quality Management System ISO9001, Environmental Management System ISO14001, and Occupational Health and Safety Management System OHSAS18001. We have now integrated Business Continuity Management System ISO22301 in order to provide our products and services in a stable manner, even in emergencies.



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