



Thermo Scientific DXR3 Raman Microscope

Put high performance to work for you

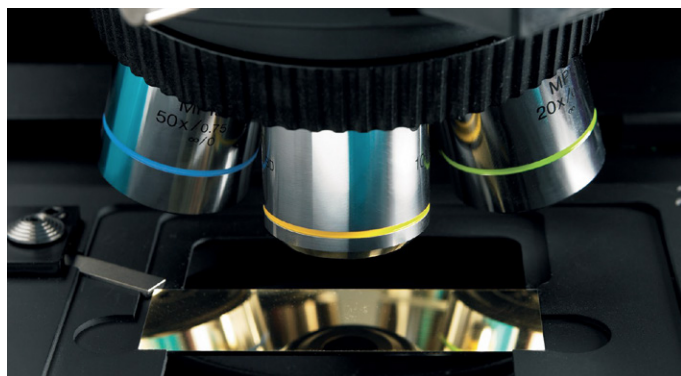
Research performance that's easy to use

DXR3 Raman Microscope

Rethinking Raman for industry and applied research

We've completely redefined the Raman microscope so that it lets you focus on your work rather than the tools you use to do it.

Without sacrificing performance, we've built an instrument family around reliability, confidence, and usability. Furthermore, we've solved practical application problems with innovations that improve your ability to get to good information quickly. We've put expertise under the hood, real world problem solving into the design, and support everywhere in the world.



Focus on your project or problem, not your instrumentation

Instrumentation used in solving analytical challenges and characterizing materials in today's fast paced, results-driven world is very different than what is required in advanced spectroscopic experiments. We designed the Thermo Scientific™ DXR3 Raman Microscope for users who are trying to solve an engineering problem, characterize a novel material, defend a patent, or tackle a backlog of evidence. We designed an instrument that is not only powerful but considers your need for reliability, repeatability, ease of use, and assurance in results. If your analysis is a means to an end that simply requires answers quickly and confidently, the DXR3 microscope is without question the right Raman for your laboratory.



Packaging



Forensics



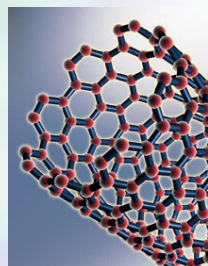
Fibers



Gems/Geology



Art Restoration



Nanotechnology

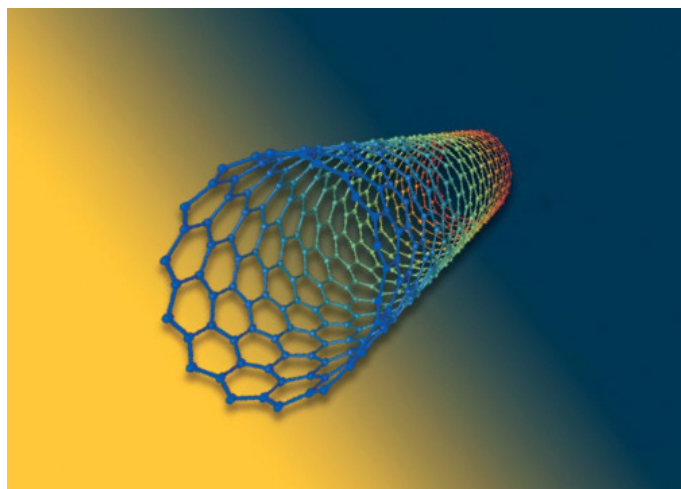
Designed for real world problems that provides effective analytical solutions

Materials Characterization

Variably controlled laser power control and patented* three path alignment assure that you are getting the best results from the right part of your material. The sensitivity of the DXR3 microscope rivals that of any research Raman system. Low concentration materials, sensitive samples, and poor Raman scatterers are more easily handled by DXR3 Raman.

The DXR3 Raman Microscope can quickly be adapted or upgraded by the user for new sample types. Add sampling, resolution, magnification, and wavelength capabilities and automatically optimize the system for new sample types.

* US patents 6,661,509 B2 and 7,460,229 B2



Identification of Unknown Materials

One of the greatest strengths of the DXR3 microscope is its ability to positively identify materials using Raman's fingerprinting nature combined with years of molecular identification experience and algorithm development. The DXR3 has one of the most extensive commercially available collection of searchable spectra to identify unknown materials in the world, with more being added all the time. Our patented* multi-component searching decodes complex samples and provides visual proof of constituents in a material, taking all the labor and uncertainty out of materials identification.

Your instrument can be configured to "point and shoot" and provide the identification of a material with a single button press.

*US patent 7,698,098 B2

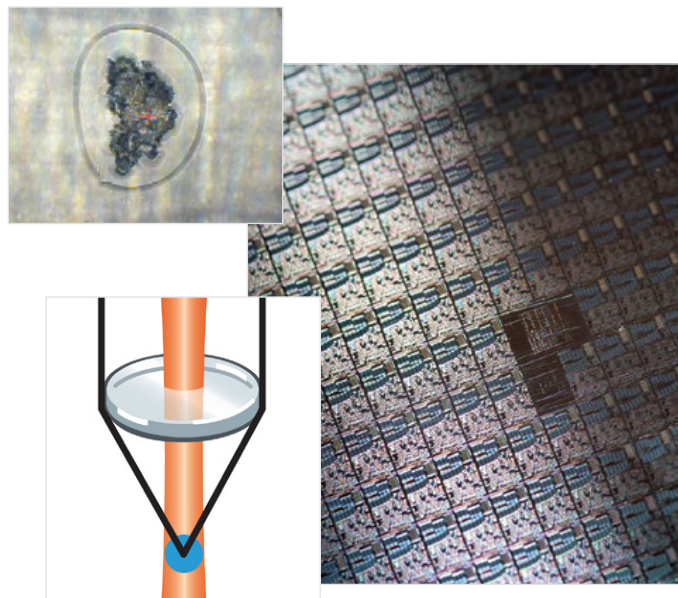
Match	File	Cumulative	Component	Folder	Filename	Index
1	CLC1	75.00	75.00	IR FT Raman Forensic Library Appendix 1	IR FT Raman Forensic Library Appendix 1	24
2	03.01	83.01	75.00	IR FT Raman Forensic Library Appendix 1	IR FT Raman Forensic Library Appendix 1	149
3	03.00	83.00	75.00	IR FT Raman Forensic Library Appendix 1	IR FT Raman Forensic Library Appendix 1	152
		83.00	75.00	IR FT Raman Forensic Library Appendix 1	IR FT Raman Forensic Library Appendix 1	152
		83.00	75.00	IR FT Raman Forensic Library Appendix 1	IR FT Raman Forensic Library Appendix 1	152

Defect and Failure Analysis

Defects are often small, foreign objects. High brightness lasers and patented* automated fine adjusting alignment system provide the enhanced ability to resolve small objects; The DXR3 system boasts excellent single point spatial resolution available today. A vast library collection and patented* searching algorithms provide rapid identification even down to the components making up a mixture.

Analytical services labs are often staffed with scientists and technicians who must be able to walk up to any piece of equipment and get results without technique expertise. Patented* optimization algorithms and automated system setup make the instrument easy to approach and enables a non-specialist to generate excellent results.

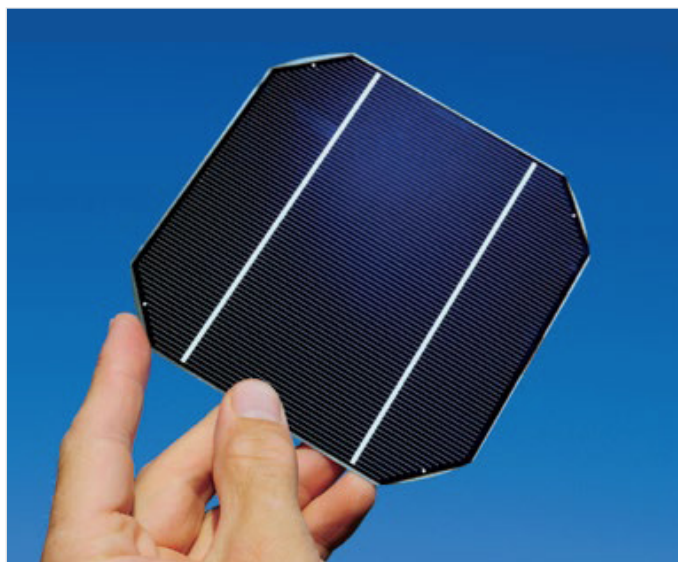
*US patents 6,661,509 B2, 7,698,098 B2 and 7,460,229 B2



Product Testing

While the DXR3 Raman Microscope is a research-ready system, its ease of use and shared software suite with the Thermo Scientific FTIR products make it ready-to-implement for end of line and work in progress materials requiring microscopic inspection. Classification, pass fail, and quantification software combined with a powerful task automation package transform your DXR3 instrument into a dedicated method microscope. Patented* data optimization tools help identify ideal method conditions. Automated calibration and alignment ensure results are obtained with a system that is working optimally.

*US patent 7,698,098 B2



Developed from experience in the analytical laboratory

Uncompromising Performance

Research power without the complexity

- **Patented* three path fine beam alignment** maintains peak performance automatically and guarantees data and visual target correlate perfectly.

*US patents 6,661,509 B2 and 7,460,229 B2

- **The high sensitivity camera enables detection of the most demanding small and low concentration materials, comparable to any research Raman available today.**
 - **High brightness lasers** maximize contrast and signal strength, providing a significant advance over traditional high power lasers, taking true advantage of Raman's small spot capabilities and confocal depth resolution.
 - **Patented* triplet spectrograph** design optimizes performance across all wavelengths simultaneously and improves small spot performance while eliminating motor driven moving parts that can affect alignment and reliability.
- *US patent 7,345,760 B2
- **Fine laser power control** allows maximum signal from sensitive samples without physically changing them.
 - **Automatic X-axis Calibration** ensures resistance to environmental-induced drift and elimination of manual calibration.

Reliability

Walk up and run it

Intelligent monitoring of instrument performance assure that the system is tuned for analysis.

A **patented* triplet spectrograph** with no moving parts eliminates reliability and repeatability issues associated with motor movement in the heart of the detection system.

Single piece cast optical frame mimics the robust philosophy of an optical table, eliminating connection points that can flex and shift with vibration or temperature change and degrade performance.

*US patent 7,345,760 B2



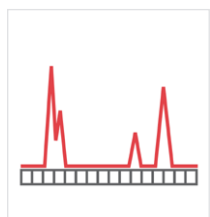
Trust

Confidence your results are good

Unique laser power regulation and lifetime tracking compensates for natural laser power fluctuations ensuring that you have consistent sample excitation and data conditions every time you use the spectrometer.

Multiple software innovations created from years of our scientists' experience interpret your data and handle any necessary corrections so you don't have to, including patented* cosmic ray rejection, automatic fluorescence rejection, and automatic intensity correction to standardize data between laser wavelengths.

*US patent 7,233,870 B1



Patented* Smart Backgrounds

account for electronic conditions in the detection system to ensure spectral response is due only to a spectroscopic sample.

*US patent 7,471,390 B2

Utility

Used by experts and non-experts alike

Numerous patented† innovations create under-the-hood intelligence that enables a non-expert to get professional results, much like today's digital camera.



Prealigned and lock-in-place components allow any user to reconfigure an instrument in seconds using automatic recognition and stored alignment parameters.



Autofocus and patented* Raman autoexposure take the guesswork out of set up for data collection and move the user quickly to useful data.

*US Patent 7,605,918 B2

Productive

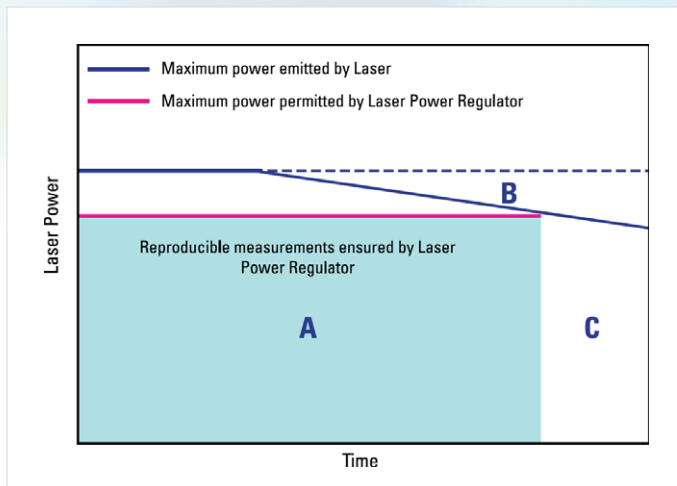
Flexibility and options that work

In minutes, users can change excitation lasers, spectral resolution, and viewing options, and then collect new data. Smart Component options can be added and installed or replaced by the user without a service call.

Adding more Raman instrumentation and sampling capability to your site is economical as components and options are interchangeable in seconds with other Thermo Scientific DXR3 microscopes or spectrometers.

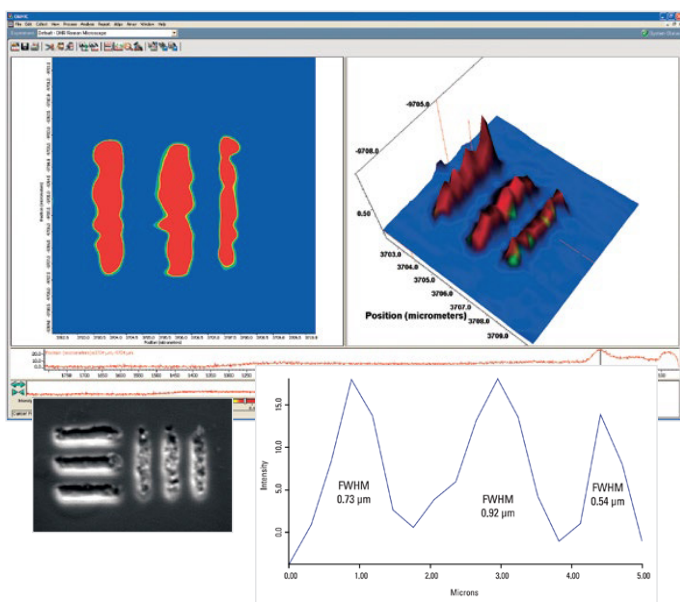
Sampling options including fiber optics, well plate automation, and a wide range of sampling stage options are available.

† US Patents 6,661,509 B2, 7,460,229 B2, 7,345,760 B2, 7,471,390 B2, 7,233,870 B1 and 7,605,918 B2



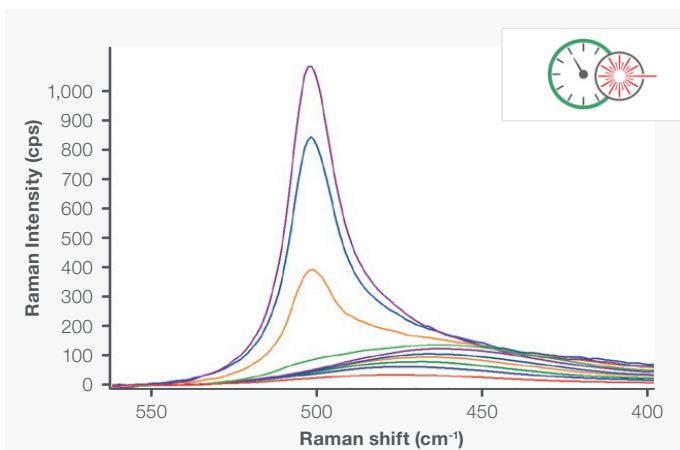
Obtain the best possible data and convert into the information you need

Exceptional Spatial Resolution



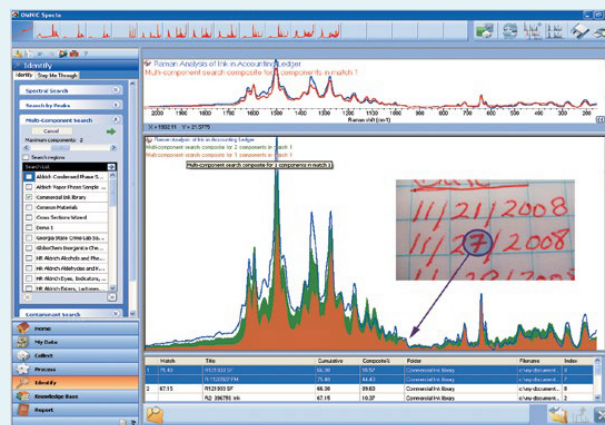
Spatial 500 nm resolution verified by scanning electron microscopy

High Sensitivity and Repeatability for Challenging Samples



Fine laser power control enables new applications like quality measurements of carbon nanotubes or solar silicon

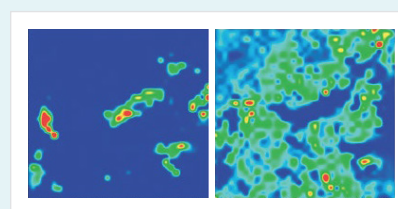
Identify the Composition of Pure and Composite Materials Effortlessly



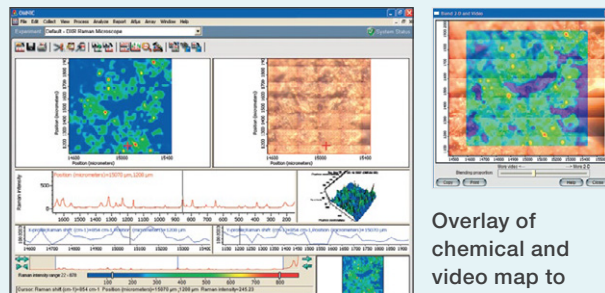
Patented* multi-component search quickly characterizes individual constituent compounds in mixtures, without user trial and error

*US patent 7,698,098 B2

High Resolution Chemical Maps Solve the Big Picture without Sacrificing Data Purity and Accuracy



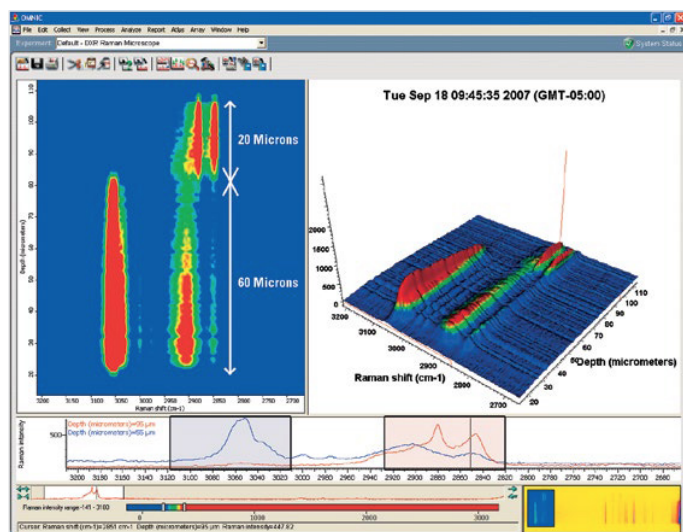
Distribution of the two major tablet components generated by MCR analysis of the hyperspectral Atlas map



Atlas generates an information-rich map of a painkiller tablet

Overlay of chemical and video map to show distribution of components

Fully Automated Confocal Microscopy



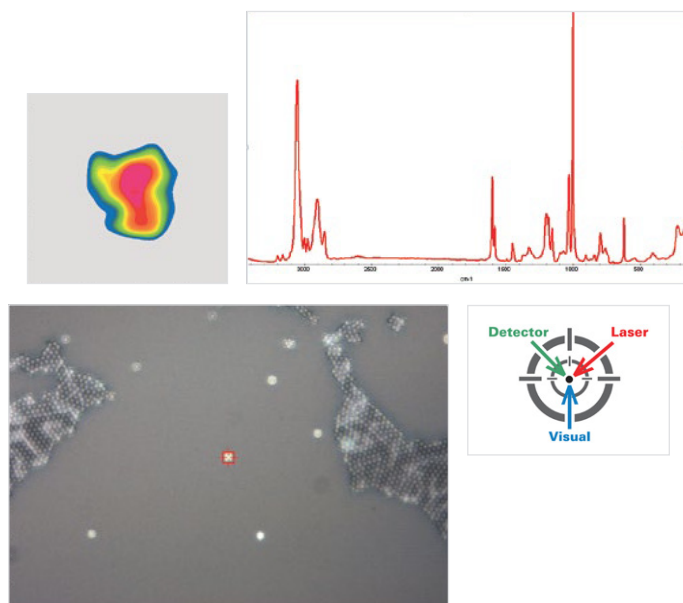
True confocal microscopy enables depth profiling of multi-layer samples without cross-sectioning

Interpret the Molecular Structure of a Sample Effortlessly



OMNIC Spectra software dramatically shortens analysis time with task-oriented spectral search, interpretation and data management tools

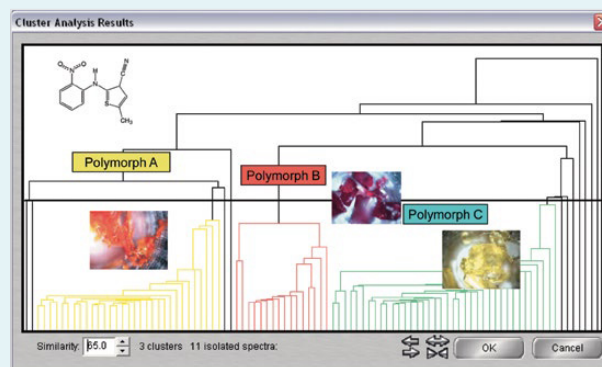
Sampling Accuracy and Spectral Purity



Systematic alignment of visual path, laser and Raman emissions ensure sensitivity and discrimination between point of interest and background

The standard DXR3 Raman Microscope is a Class 1 laser product. Class 3B when fiber optic interface is installed and with some specialized accessories.

Automate, Verify, and Classify



Unique analytical tools designed to get to answers quickly and with confidence

To learn more or request a demo visit thermofisher.com/raman

thermoscientific

For research use only. Not for use in diagnostic procedures. For current certifications, visit thermofisher.com/certifications

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