

**Advanced Confocal Raman  
Microscope**

**ATR8500**

**Features:**

- Fully automated Raman imaging, auto-focus, auto-scan;
- Large area imaging (50X50mm) , Automated imaging spicing;
- Max. 3 types of wavelengths lasers;
- Ultra depth Imaging function (Optional) ;
- High sensitivity, SNR>6000:1
- True-Focus to ensure accurate Raman image
- High spatial resolution
- Exclusive software switch optical path
- Fast positioning, fast find focus position
- High quality objective, spot size at micrometre
- 5-mega camera provide clear image
- USB2.0 direct connect to PC

**Application:**

- Nano particles & new materials
- Scientific research institute
- Biological Science
- Forensic medical identification
- Materials science
- Medical Immunology Analysis
- Agricultural & food safety
- Water pollution analysis
- Gemstones and inorganic minerals identification
- Environmental Science

**Description:**

ATR8500 series Raman microscope integrates two or three lasers into the system, combine both advantages of Raman spectrometer and microscope in order to make “eyes see is to be detected” possible. Visualize accurate position by Raman detect platform, and the observer can detect Raman signal of samples on different surface status, meanwhile synchronizing on PC display microarea status to be detected, it has greatly facilitated Raman microarea detect.

ATR8500 series can perform auto-focus, auto-scan, one button operate can perform experiment in batches, no wait time to obtain high reliable scanned Raman data.; ATR8500 configured exclusive objective for Raman system, it makes laser spot size close to diffraction limits, and using 5-mega camera display focus information intuitively on PC. It overcomes existing problem of common Raman spectrometer, Raman signal collected focal plane could higher or lower than actual one, so that it improve Raman signal.

ATR8500 exclusive software for optical path switch reduce optical path loss during camera imaging, it realize Raman signal collection is separated from camera imaging, and obtain the best signal intensity.

Meanwhile, ATR8500 use the highest Raman spectrometer with excellent sensitivity, SNR, stability are excel in the Raman research industry.



Fig 1 ATR8500 Order Guide:

	Model	Laser wavelength/nm	Laser Power/mW	Wavenumber	Resolution /cm <sup>-1</sup>
Single wavelength Raman Microscope	ATR8500-532	532	100	200 ~ 3700	5 ~ 7
	ATR8500-633	633	50	200 ~ 3500	3 ~ 6
	ATR8500-785	785	500	200 ~ 3500	3 ~ 8
	ATR8500-1064	1064	500	200 ~ 2600	7 ~ 12
	ATR8500-830	830	500	200 ~ 3500	3 ~ 8
Dual wavelength Raman Microscope	ATR8500-785+1064	785+1064	500	200 ~ 3500	3 ~ 8
			500	200 ~ 2600	7 ~ 12
	ATR8500-532+633	532+633	100	200 ~ 3700	5 ~ 7
			50	200 ~ 3500	3 ~ 6
	ATR8500-532+1064	532+1064	100	200 ~ 3700	5 ~ 7
			500	200 ~ 2600	7 ~ 12
	ATR8500-532+785	532+785	100	200 ~ 3700	5 ~ 7
			500	200 ~ 3500	3 ~ 8
	ATR8500-633+1064	633+1064	50	200 ~ 3500	3 ~ 6
			500	200 ~ 2600	7 ~ 12
Tri-bands wavelength Raman Microscope	ATR8500-532+633+1064	532+633+1064	100	200 ~ 3700	5 ~ 7
			50	200 ~ 3500	3 ~ 6
			500	200 ~ 2600	7 ~ 12
	ATR8500-532+785+1064	532+785+1064	100	200 ~ 3700	5 ~ 7
			500	200 ~ 3500	3 ~ 8
			500	200 ~ 2600	7 ~ 12
High End	ATR8500LT Deep cooled down to -30°C, long integration time up to 1.3hrs	3 Wavelengths selection from 532,633,785,830,1064	As above	20% shorter wavenumber range	Resolution less a bit

ATR8500 Performance parameters	
Microscope Camera System	5-mega pixels
Focus Type	True Focus
Laser spot size	>1μm
Laser stability	$\sigma/\mu < \pm 0.2\%$
Interface	USB2.0
X,Y-axis Electronic controlled two-dimension platform	
Move range	50 X 50 mm

Move resolution	0.1 $\mu\text{m}$
Positioning Accuracy	1 $\mu\text{m}$
Scan Speed	20 mm/s
Z-axis (Auto-Focus)	
Focus Accuracy	$\leq \pm 0.2 \mu\text{m}$
Max range	20 mm
Focus speed	Over 10 s

Fig 2 ATR8500 Performance Parameters



Fig 1 ATR8500 Raman Microscope outlook

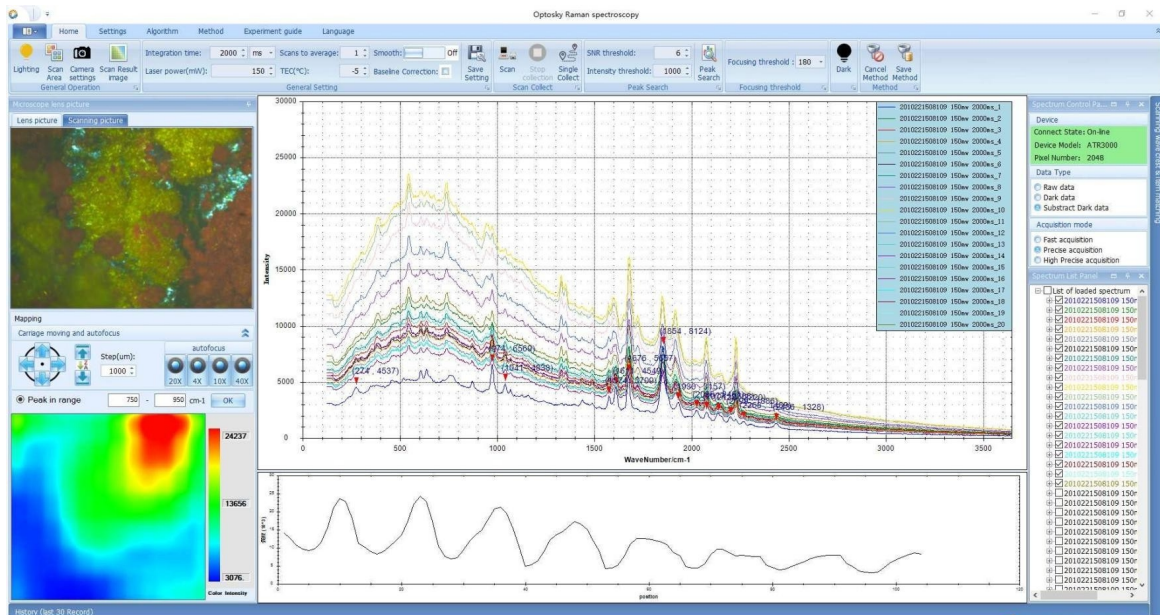


Fig 2 ATR8500 software interface

## 2 Optical Performance

### 2.1 Spectrum

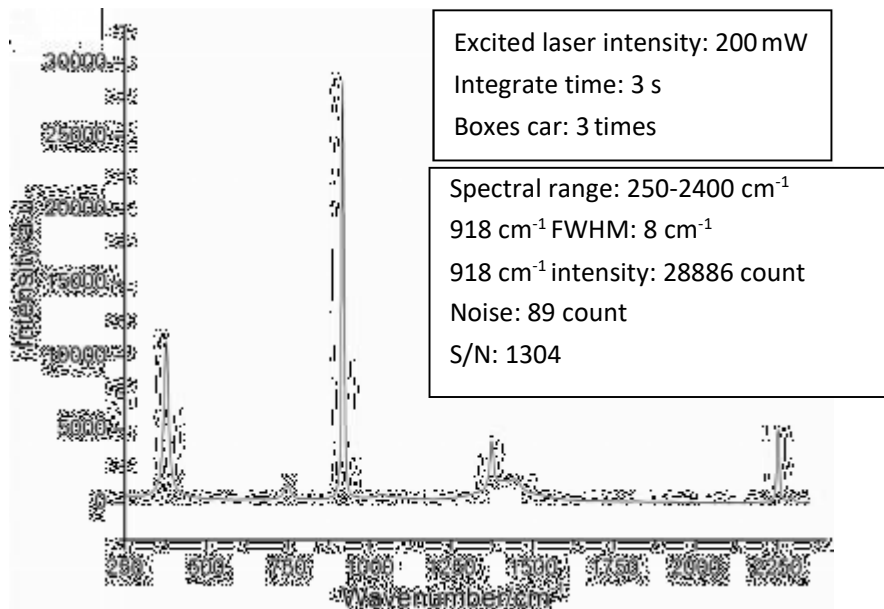


Fig 4 ATR8500 acquire acetonitrile spectrum



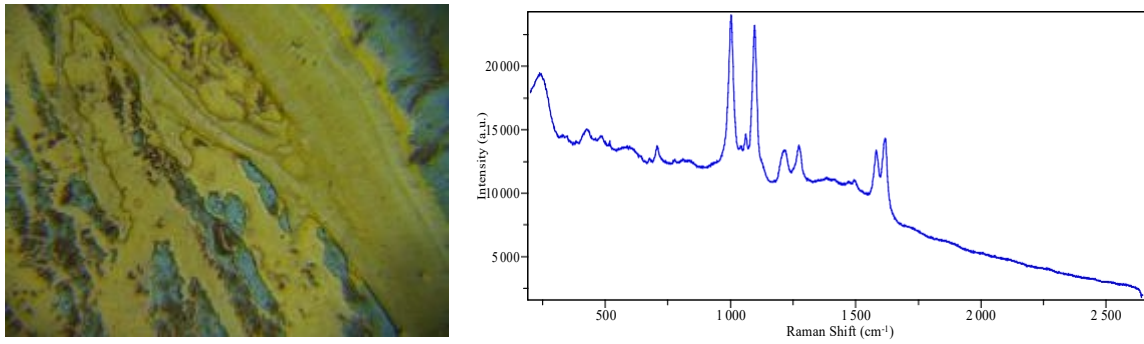


Fig 5 ATR8500 perform SERS 1 (The Left is sample picture, the right is SERS Raman spectra)

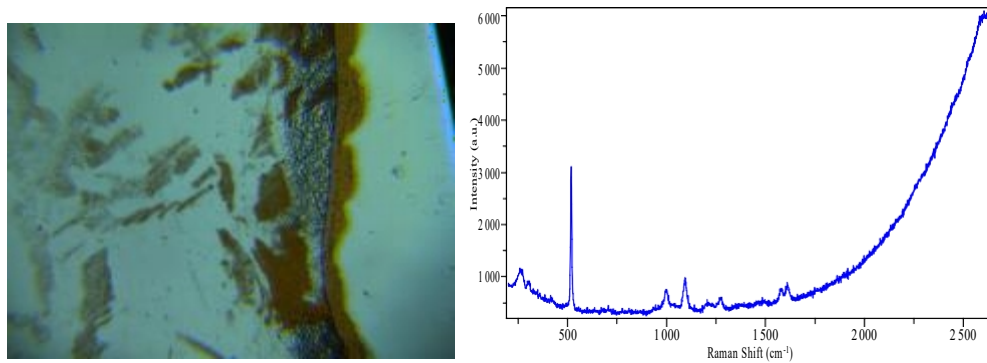


Fig 6 ATR8500 perform SERS test 2 (The Left is sample picture, the right is SERS Raman spectra)

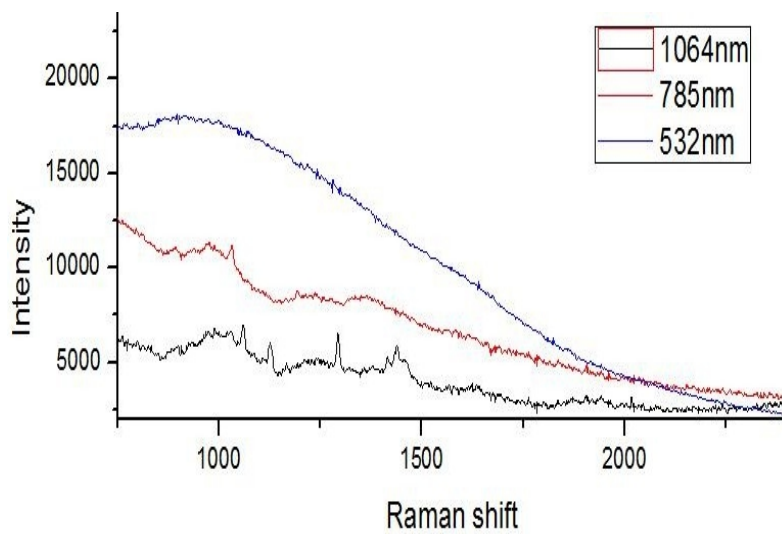
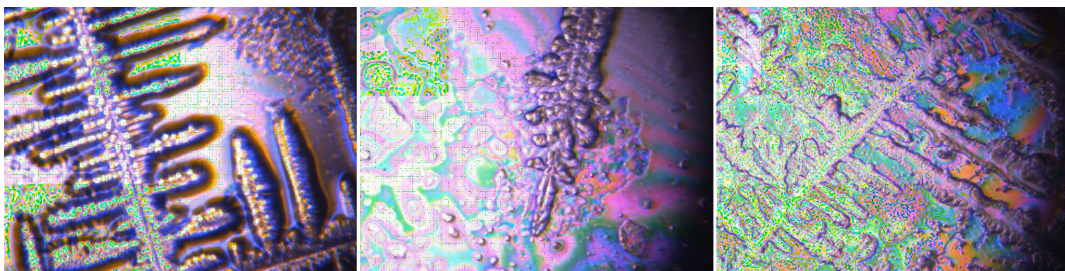


Fig 7 ATR8500 Test cell metabolite, the above surface outlook, the below is Raman spectrum separately by ATR8500-1064, ATR8500-785, ATR8500-532

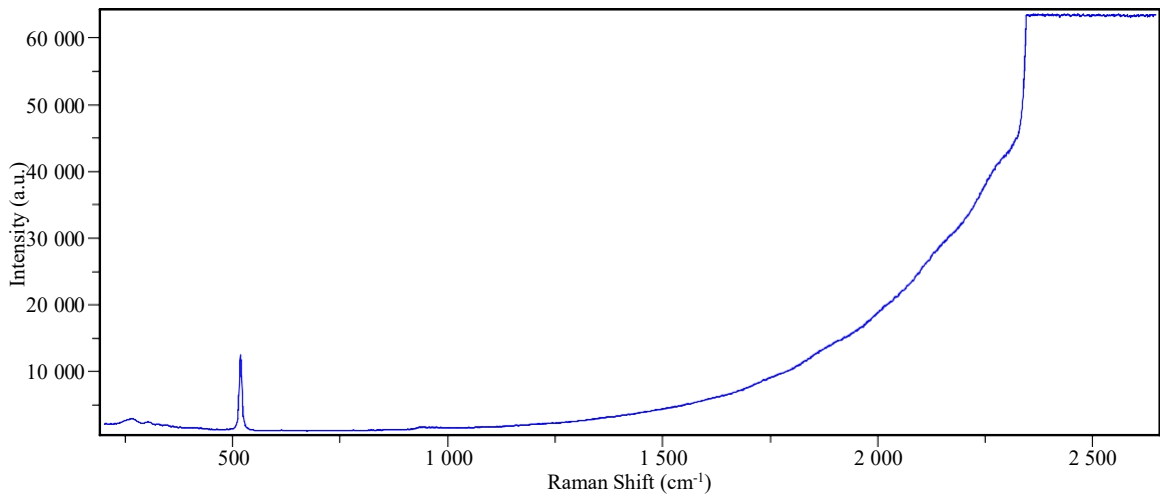


Fig 8 ATR8500 test Si Raman Spectra (500mW, 1S Integration time)

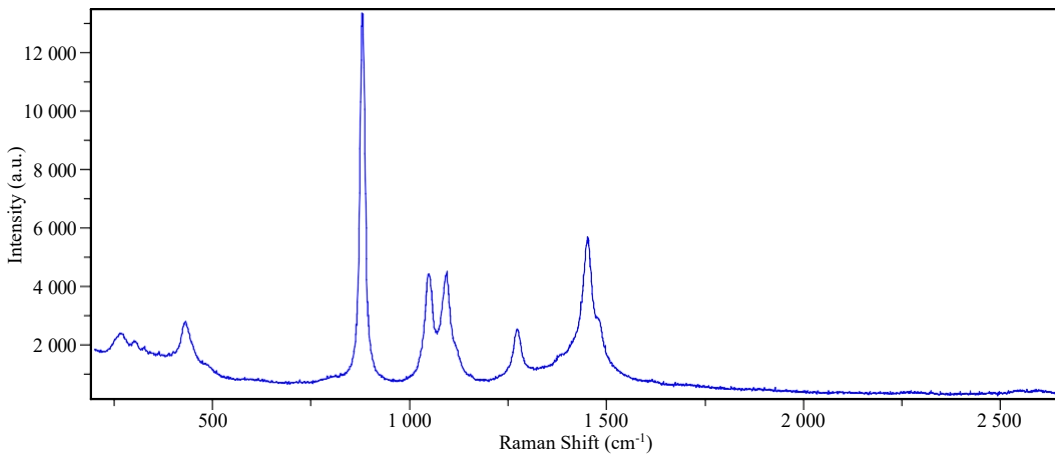


Fig 9 ATR8500 measure ethanol spectra (500mW, 1S integration time)

## 5. Details



Fig 10 Raman signal high through put objective, objective as long as 8mm;

## 6. Reference

