



DATASHEET
EOC-SI-R8300AF
Auto-Focusing Raman Microscope

Description

EOC-SI-R8300AF combines the advantages of the microscope and the Raman spectrometer. Unique conjugate focusing system makes accurate focusing possible.

The EOC-SI-R8300AF is equipped with a special lens designed for the Raman system, which makes the laser light spot close to the diffraction limit, and the focus information is displayed accurately and directly on the computer through the 5 million cameras.

Overcomes the problem of collecting Raman's signal in the ordinary Raman system slightly higher or lower than the actual optimal focal plane, thus improving the spectral quality.

EOC-SI-R8300AF unique software optical path switching part perfectly solves the loss of camera imaging time road and realizes the separation of camera imaging and Raman signal collection, thus obtaining the optimal strength.

Meanwhile EOC-SI-R8300AF used specifically for high-performance Raman micro Raman system optimization, sensitivity, signal-to-noise ratio, stability, etc., are the industry leading level, guarantee Raman study.

Feature:

- True focus, more accurate Raman image
- Ultra-high spatial resolution
- Unique software control switching path
- Super high stability
- Quickly locate and quickly locate the focus position
- High quality objective lens, spot micron scale
- 5 million cameras, accurate image
- Laser wavelength can be selected from 532, 785 and 1064 nm
- Equipped with a high performance spectrometer
- The usb 2.0/LAN interface is directly connected to the computer

Application:

- Biological sciences
- Forensic analysis
- Material science
- Medical immunoassay
- Agricultural and food safety
- Water pollution analysis
- Gemstone
- Environmental science

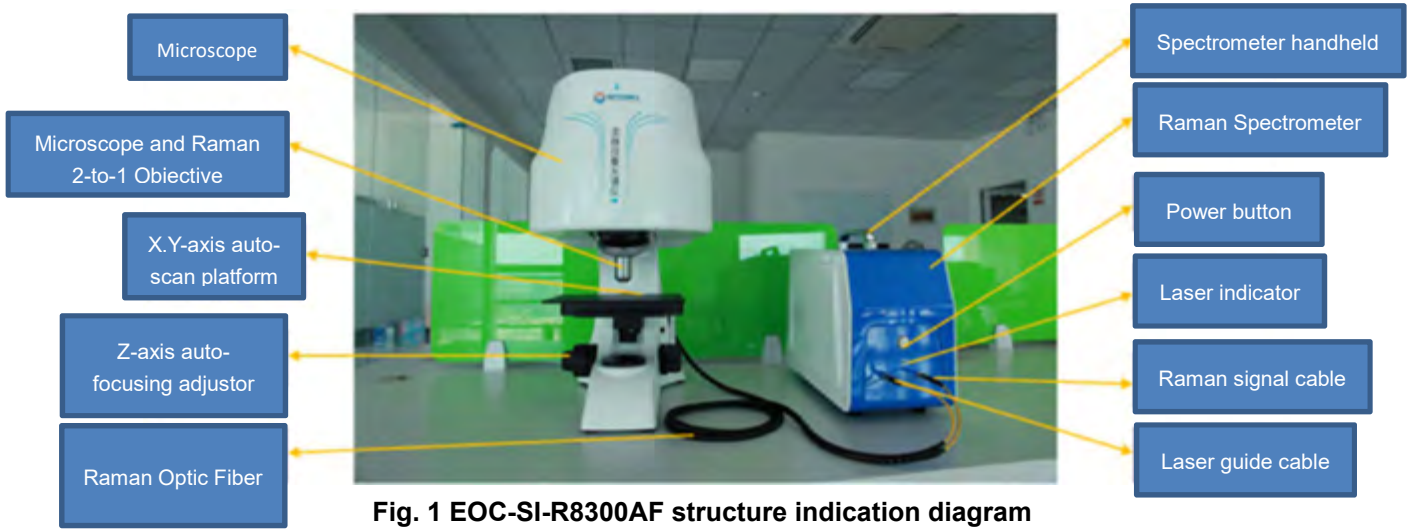


Fig. 1 EOC-SI-R8300AF structure indication diagram

EOC-SI-R8300AF Automated Focusing Raman Microscope	
Spectral resolution	5 cm-1
Spectral range	200-3800、150-2600 cm (Other wave ranges can be customized to a minimum of 50cm-1)
Spectral stability	$\sigma/\mu < 0.5\%$ (COT 8 hours)
Temperature stability	Spectral shift ≤ 1 cm-1(10-40 °C)
SNR	>5000:1
Detector	TEC refrigeration 2048 pixel CCD
Wavelength range	200nm-1100nm
Pixel size	14 μ m*200 μ m
Detector dynamic range	10000:1
Laser central wavelength	785nm (+/-1nm)
5 megapixel industrial camera	3 megapixel or 5 megapixel industrial camera
Focus mode	Conjugate focus
laser bandwidth	Laser bandwidth
Laser beam diameter	>1 μ m
Laser stability	$\sigma/\mu < \pm 0.2\%$
Laser bandwidth	0.1 nm
Communication mode	USB2.0

2. Optical performance

2.1 Spectral exhibition

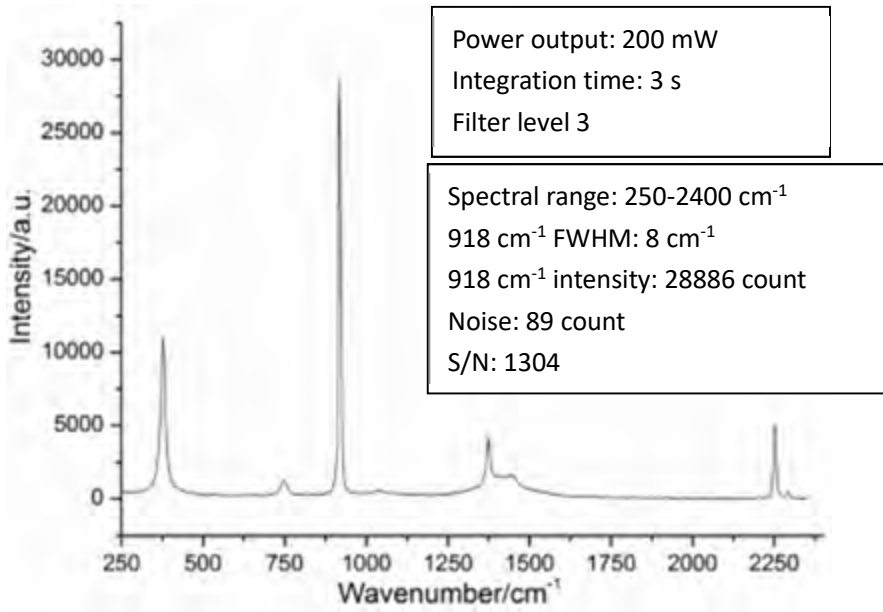
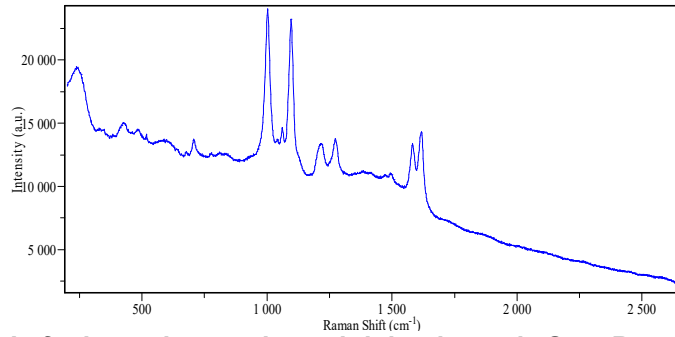
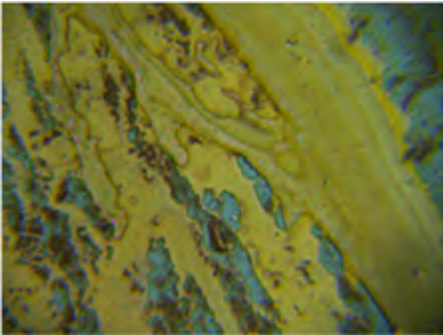
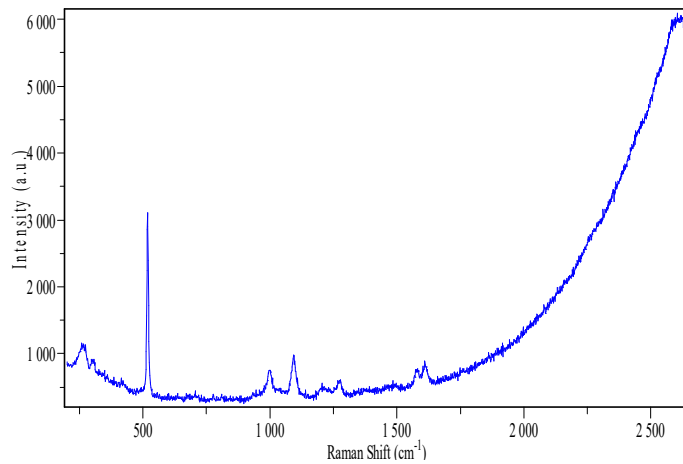
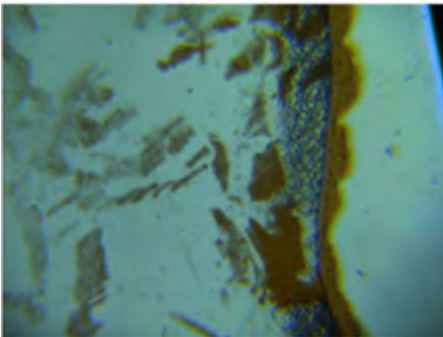


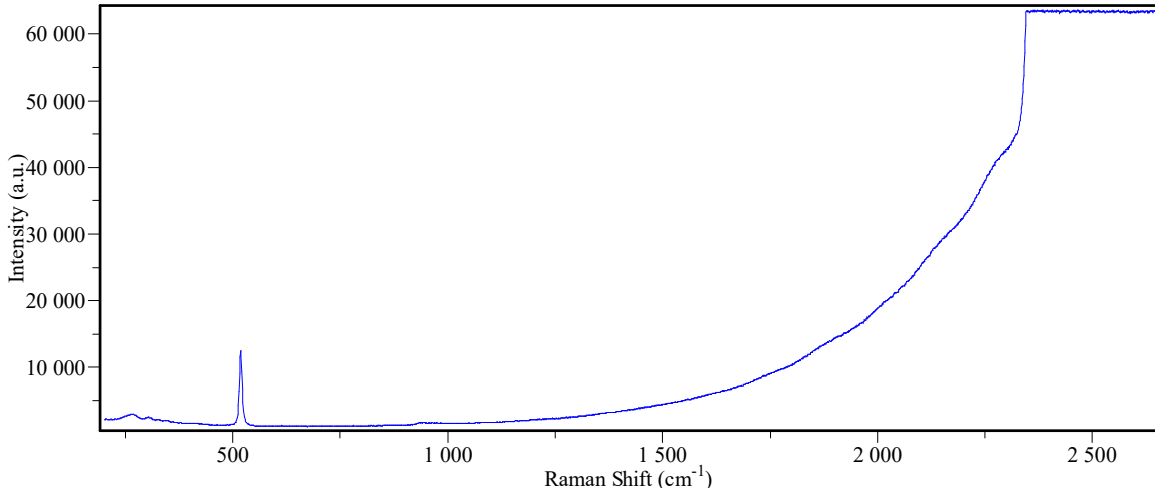
Fig. 2 EOC-SI-R8300AF collect acetonitrile spectra



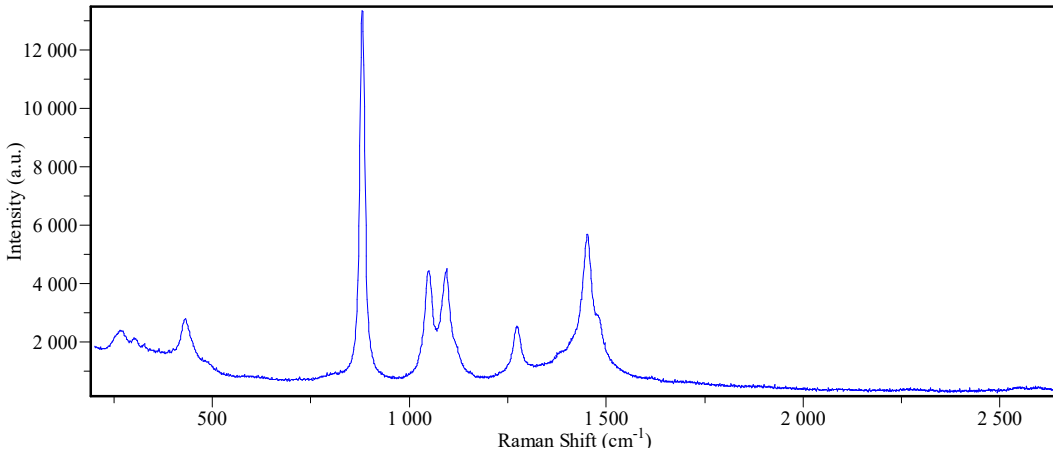
EOC-SI-R8300AF Sers experiment 1: Left picture is sample, and right picture is Sers Raman spectra



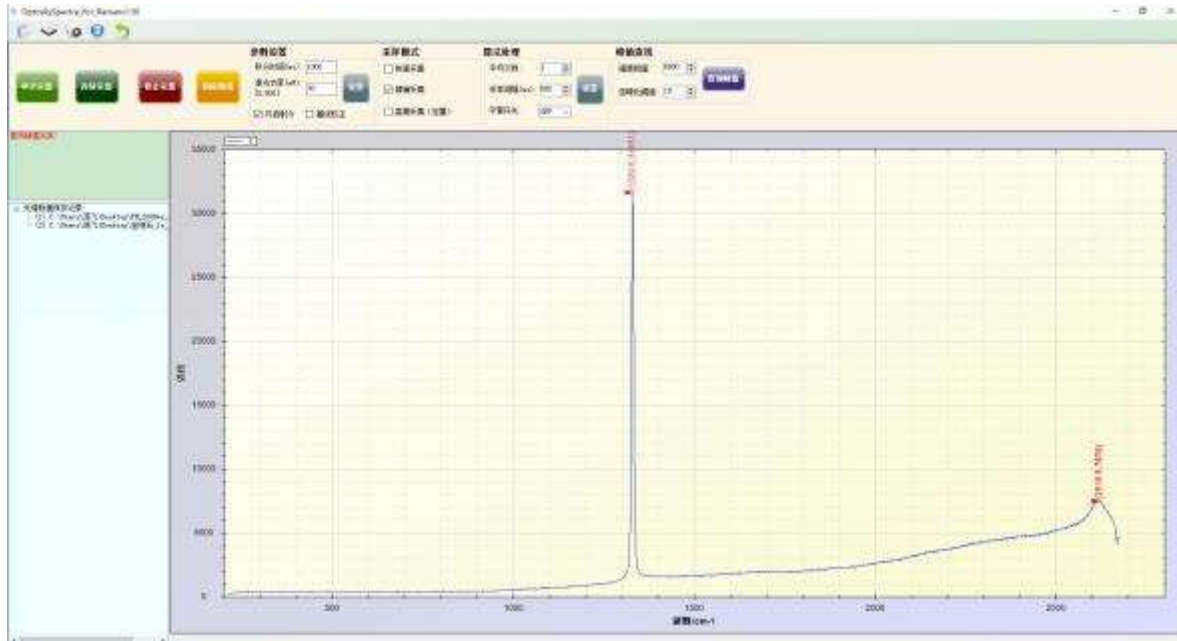
EOC-SI-R8300AF Sers experiment 2: left picture is sample, right picture is Sers Raman spectra



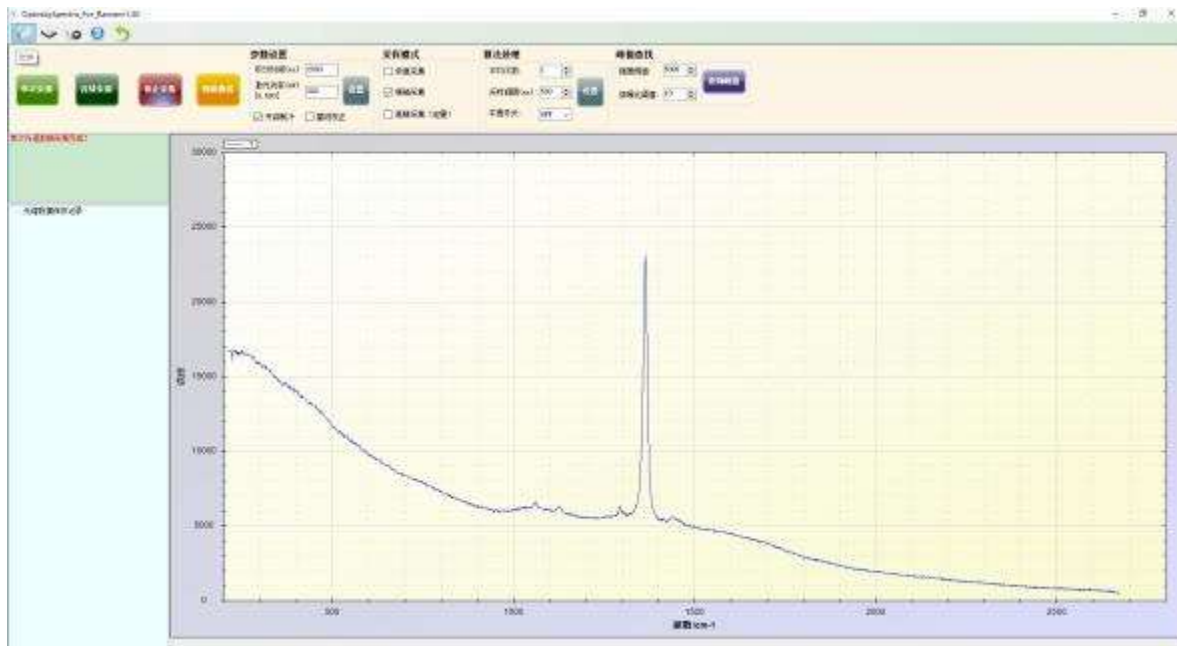
EOC-SI-R8300AF Measure Si Raman spectra 500mW, integration time: 1S



EOC-SI-R8300AF Measure alcohol spectra 500mW, integration time:1S



EOC-SI-R8300AF Measure diamond Raman spectra 30mW, integration time: 1S



EOC-SI-R8300AF measure boron carbide (PN) spectra (200mW, integration time: 2S)

2.2 Raman resolution

2.2.1 Tylenol Raman spectra

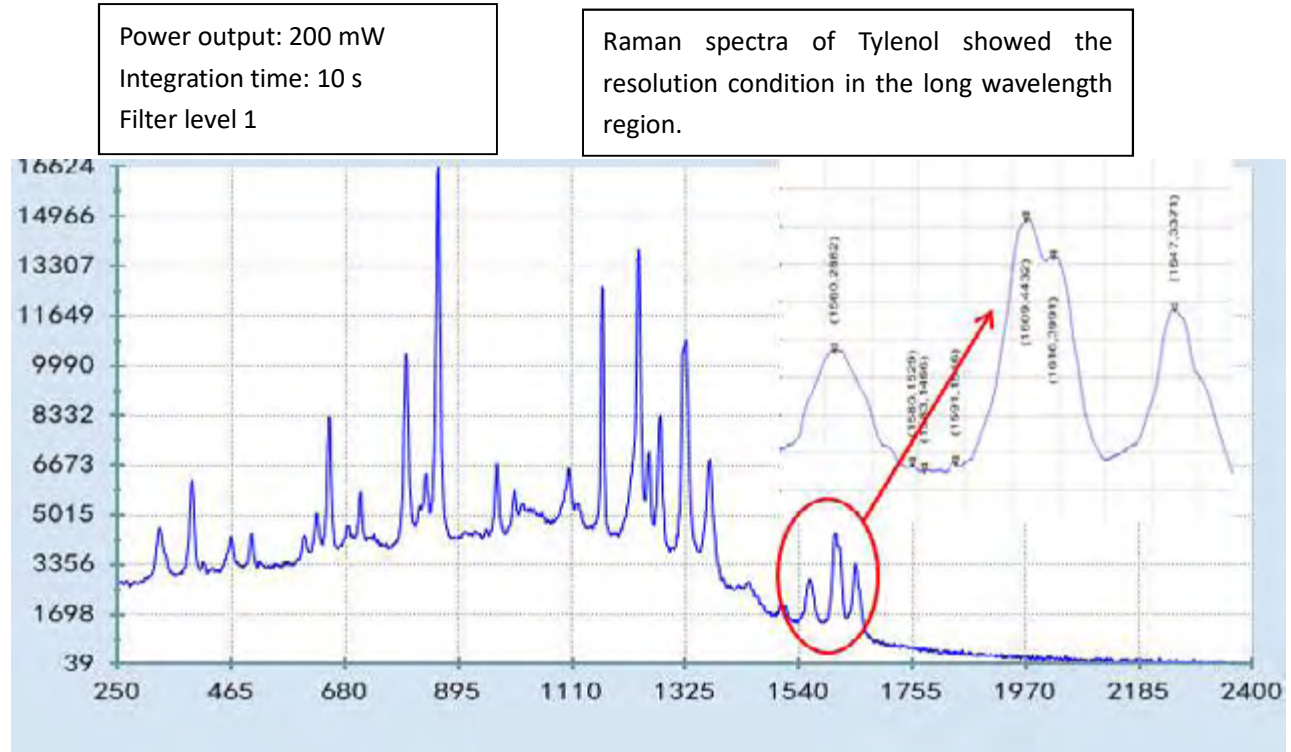


Fig 7 Tylenol spectra shows clear 1610/1615 cm^{-1} vibration peak

2.2.2 Petrol Raman spectra

Power output: 200 mW
Integration time: 10 s
Filter level 1

Raman spectra of 93# petrol showed the resolution condition in the long wavelength region.

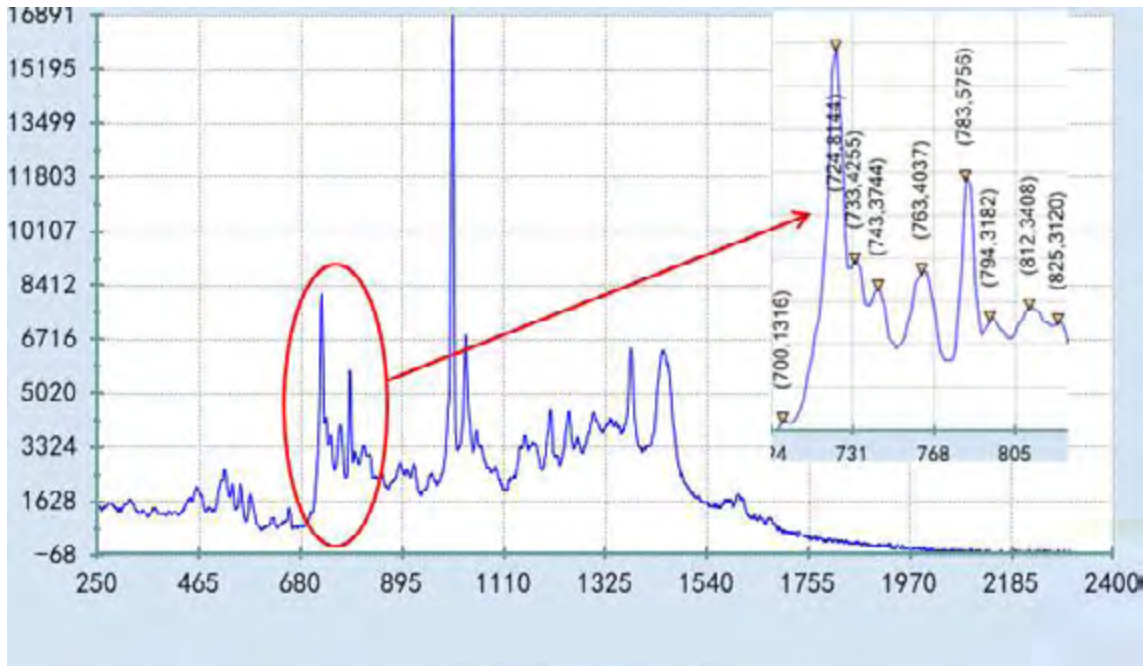


Fig 8 93# petrol Raman spectra, 723/732/742 cm^{-1} spectral shift is clearly recognized

3Reliability

Fig3.1, Fig3.2 Temperature stability is measured by EOC-SI-R8300, kept stable above an hour for each temperature node ranging between 5-40°. Sample measured is acetonitrile, wavenumbers shift $\leq 1\text{cm}^{-1}$ (Fig 3.1), peak top intensity change < 10% (Fig 3.2).

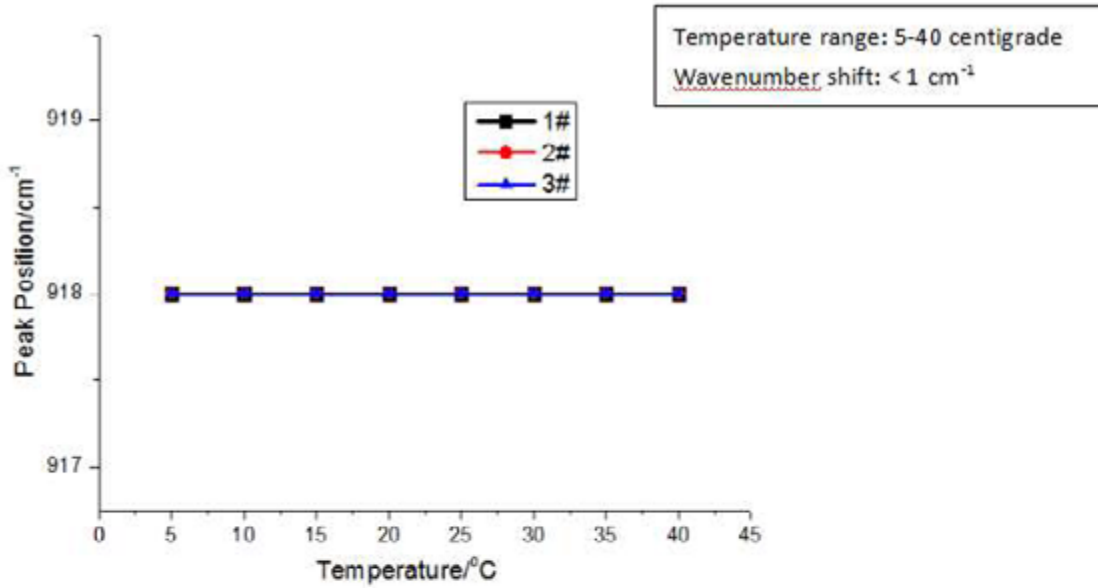


Fig. 3.1 Wavenumber shift results testing from 5 °C to 40 °C of five ATR2000 portable Raman spectrometers

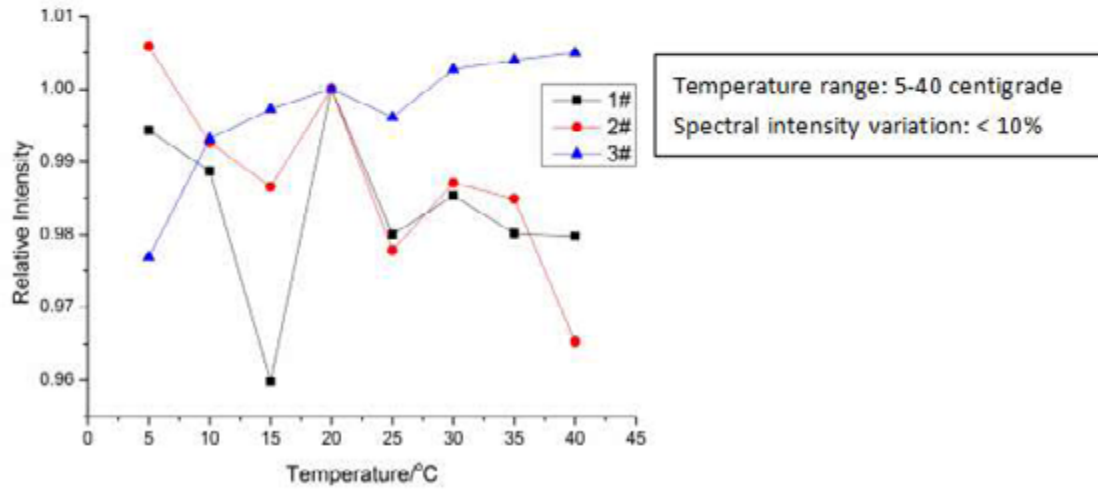


Fig. 3.2 Intensity variation testing from 5 °C to 40 °C of five ATR2000 portable Raman spectrometers

4 Order guide

Model number	Wave length (nm)	Laser power (mW)
EOC-SI-8300AF-473	473	100
EOC-SI-8300AF-532	532	100
EOC-SI-8300AF-785	785	600
EOC-SI-8300AF-785-12		1200
EOC-SI-8300AF-830	830	600
EOC-SI-8300AF-1064	1064	600
Available in custom wavelength		

5. Details



Fig 9 branded high stable microscope platform; X、 Y、 Z-axis precision adjustable; Adjustable knob work smooth, weight up to 5.6 Kg, very stable.

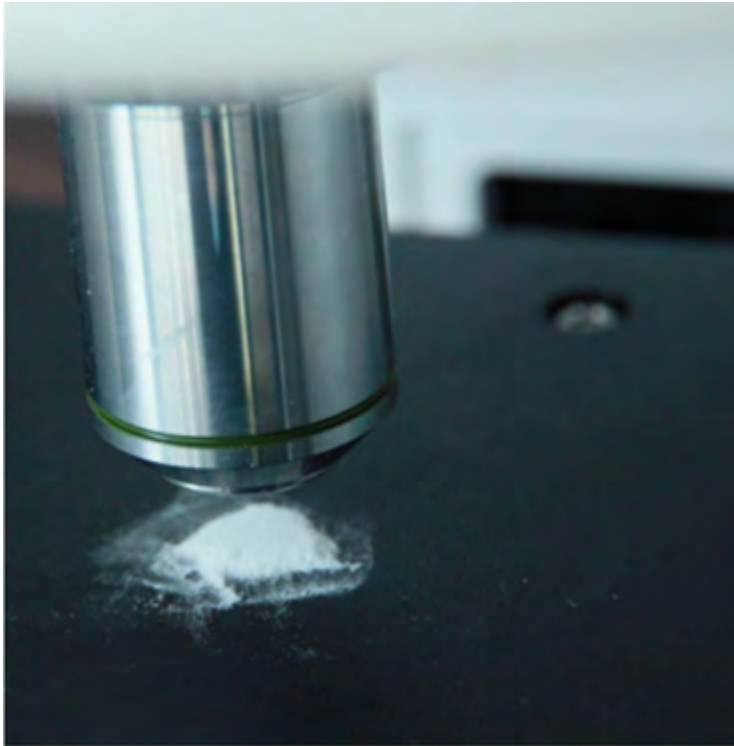


Fig 10 Raman signal high transmission objective, confocal distance length up to 8nm

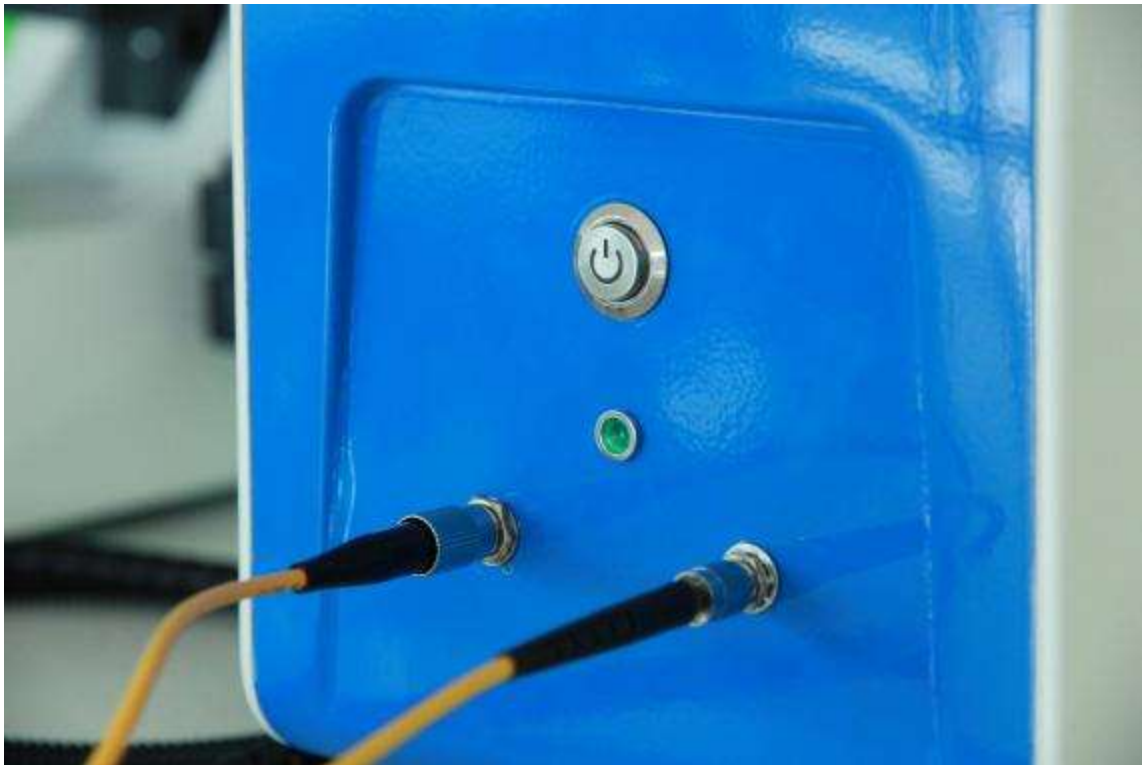


Fig 11 Power button, button on/off as many as 1,000,000 times, high strength laser cable, signal cable is very strong, and laser indicator can intuitively display operating status.



Fig 12 Simple interface: Raman microscope: power socket +USB2.0 connector