



Raman Microscope

EOC-SI-R8300BS

● Feature:

- True focus, guaranteed 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
-

Description

EOC-SI-R8300BS combines the advantages of the microscope and the Raman spectrometer. Unique conjugate focusing system makes accurate focusing possible.

The EOC-SI-R8300BS 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-R8300BS 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-R8300BS used specifically for high-performance Raman micro Raman system optimization, sensitivity, signal-to-noise ratio, stability, etc., are the industry leading level, provide strong guarantee for Raman study.



Fig. 1 EOC-SI-R8300BS Structure indication diagram

| ATR8300 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 $\leq 1 \text{ cm}^{-1}$ (10-40 °C) |
| SNR | 2000:1 |
| Detector | TEC refrigeration 2048*64 pixels CCD |
| Wavelength range | 200nm-1100nm |
| Pixel size | 14 μm *200 μm |
| Detector dynamic range | 10000:1 |
| Laser central wavelength | 785nm (+/-0.5nm) |
| 5 megapixel industrial camera | 3 megapixel or 5 megapixel industrial camera |
| Focus mode | Conjugate focus |
| laser power | > 550mW(software adjustable) |
| Laser beam diameter | >1 μm |
| Laser stability | $\sigma/\mu \leq \pm 0.2\%$ |
| Laser bandwidth | 0.08 nm |
| Communication mode | USB2.0 |

2. Optical performance

2.1 Spectral exhibition

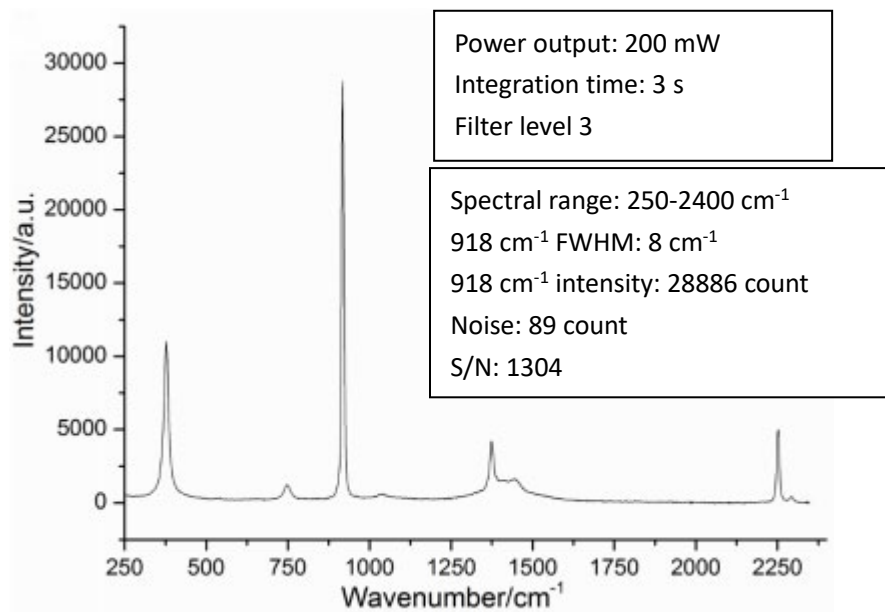


Fig. 2 EOC-SI-R8300BS collect acetonitrile spectra

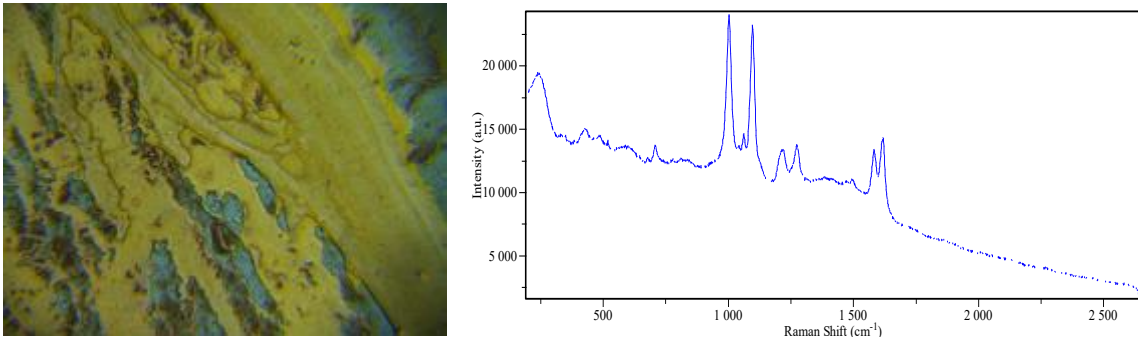
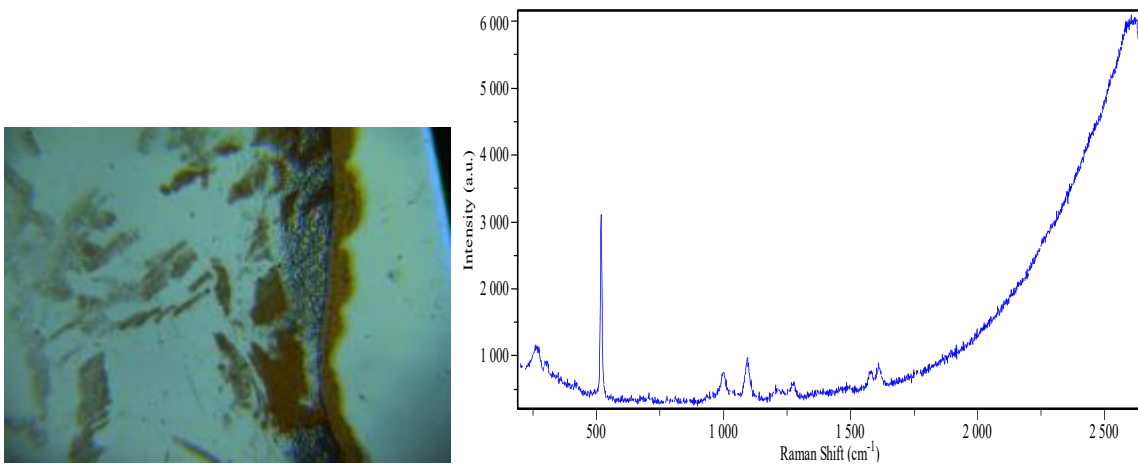


Fig.2 EOC-SI-R8300BS Sers experiment 1 (Left picture is sample, and right picture is Sers Raman spectra)



EOC-SI-R8300BS Sers experiment 2 (left picture is sample, right picture is Sers Raman spectra)

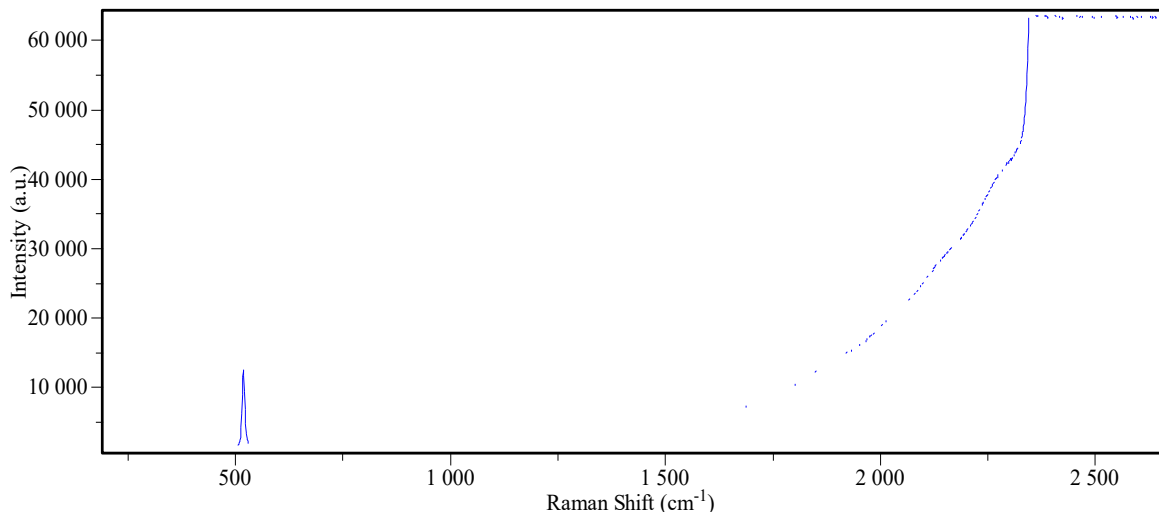


Fig 3 EOC-SI-R8300BS Measure Si Raman spectra (500mW, integration time: 1S)

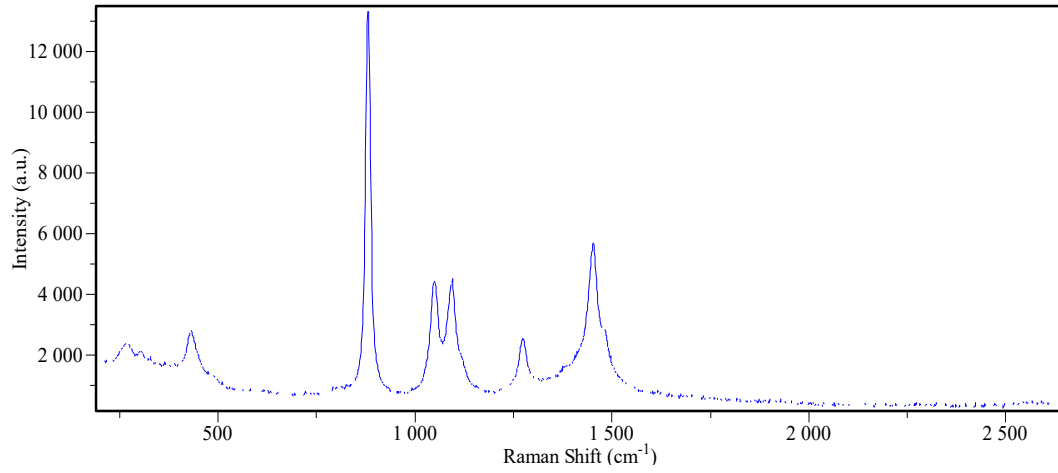


Fig 4 EOC-SI-R8300BS measure alcohol spectra (500mW, integration time:1S)

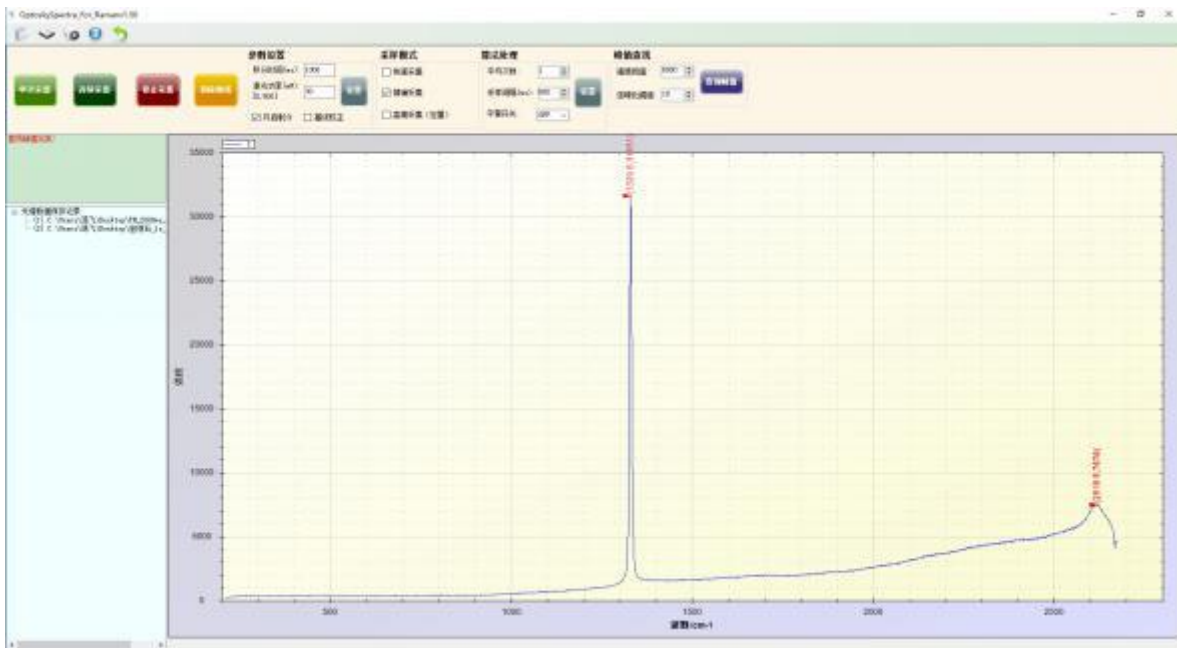


Fig 5 EOC-SI-R8300BS measure diamond Raman spectra (30mW, integration time: 1S)

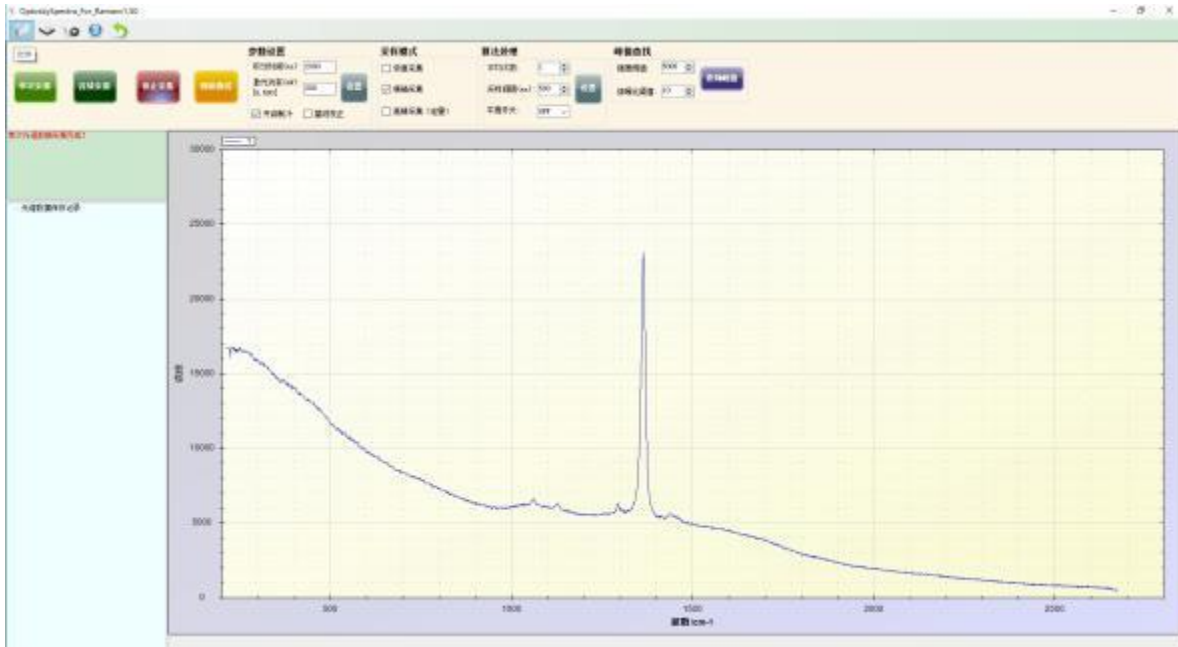


Fig 6 EOC-SI-R8300BS measure boron carbide (PN) spectra (200mW, integration time: 2S)

2.2 Raman resolution

2.2.1 Tylenol Raman spectra

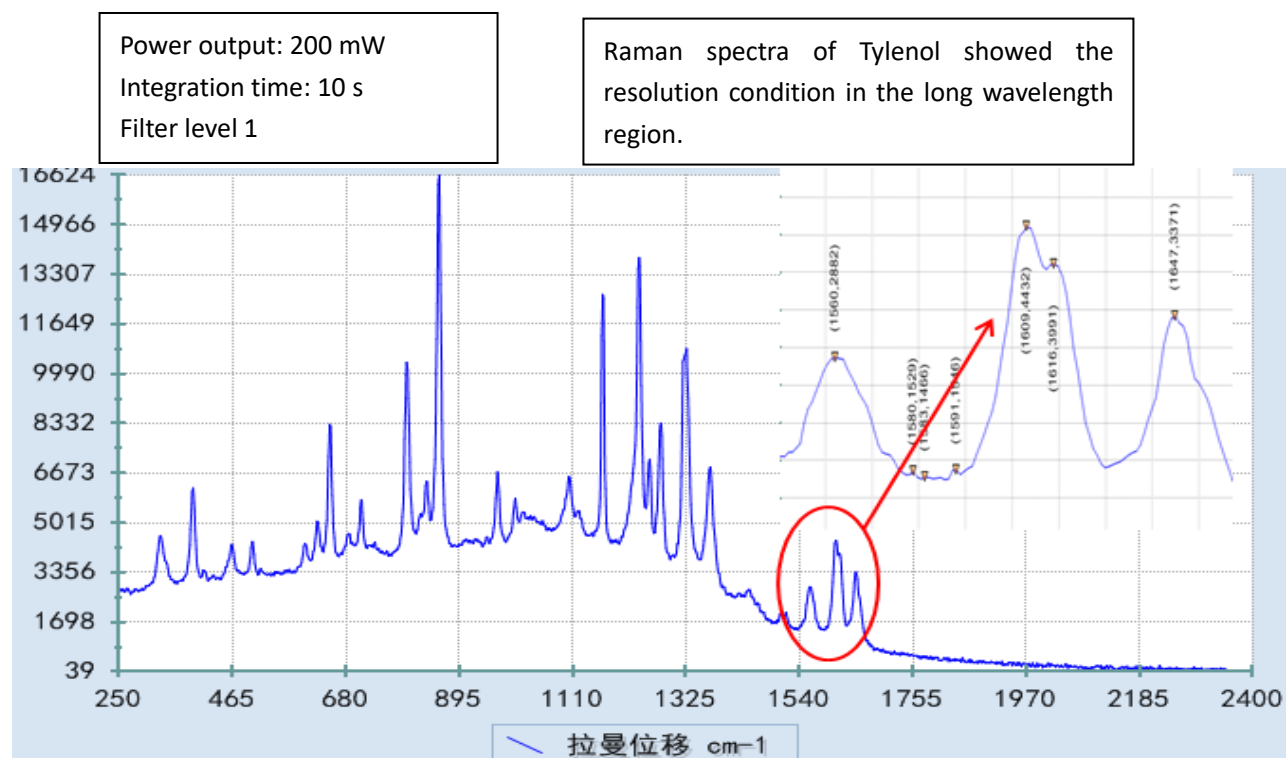


Fig 7 Tylenol spectra shows clear 1610/1615 cm⁻¹vibration peak

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.

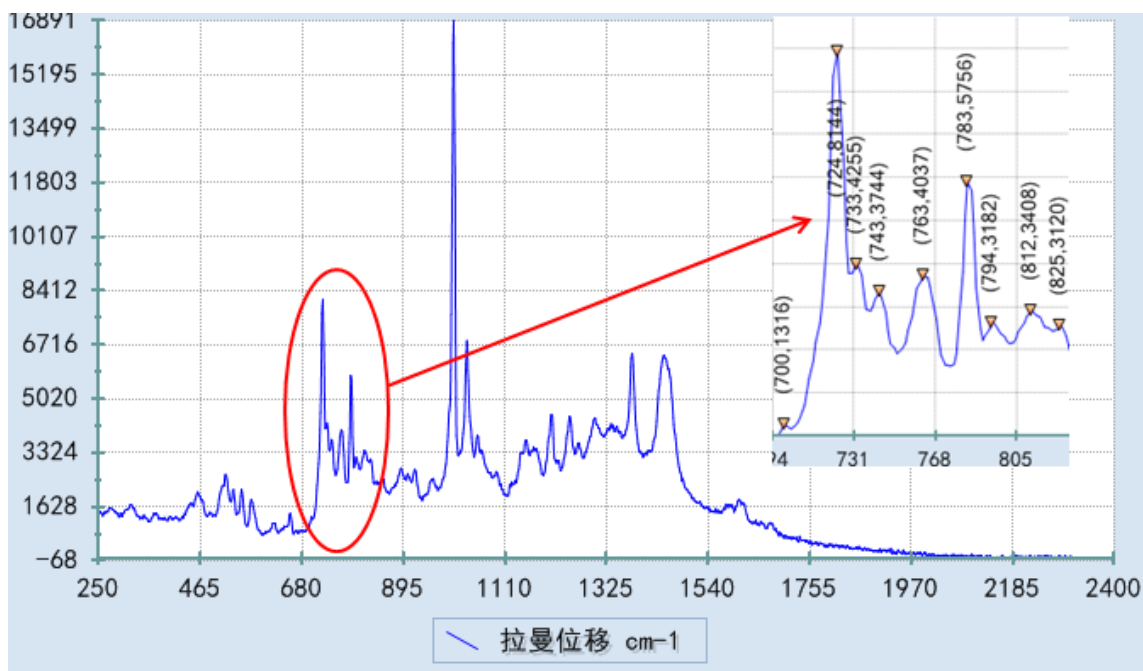


Fig 8 93# petrol Raman spectra, 723/732/742cm⁻¹ spectral shift is clearly recognized

3Reliability

Fig3.1, Fig3.2 temperature stability is measured by EOC-SI-R8300BS, keep stable above an hour for each temperature node ranging between 5-40 °C. Sample measured is acetonitrile, wavenumbers shifts $\leq 1\text{cm}^{-1}$ (Fig 3.1) , peak top intensity change $< 10\%$ (Fig 3.2)

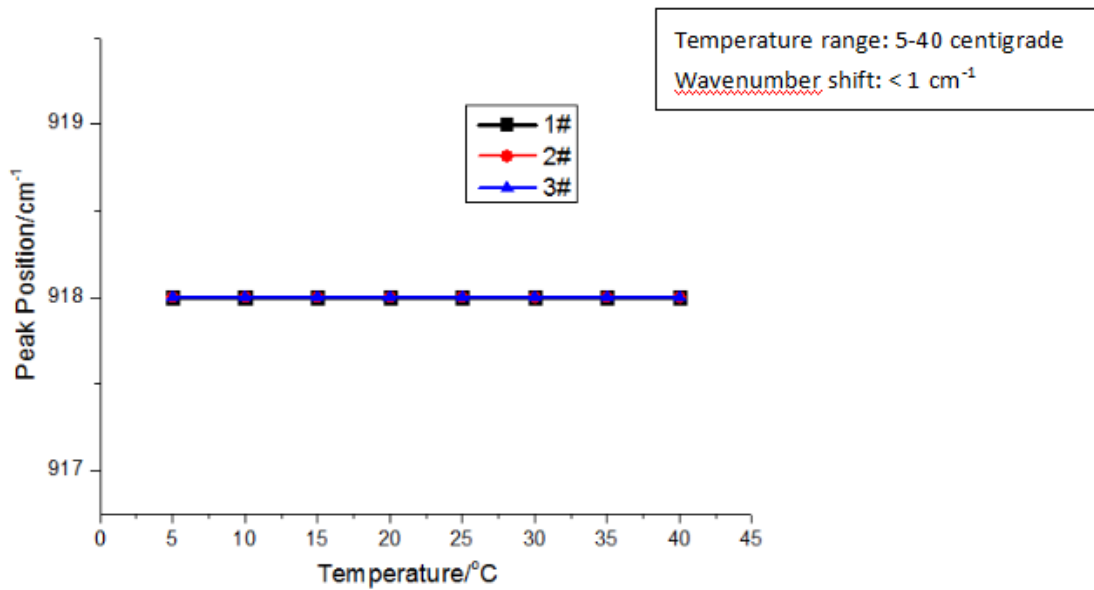


Fig. 3.1 Wavenumber shift results testing from 5 °C to 40 °C of five ATR2000 portable Raman spectrometers

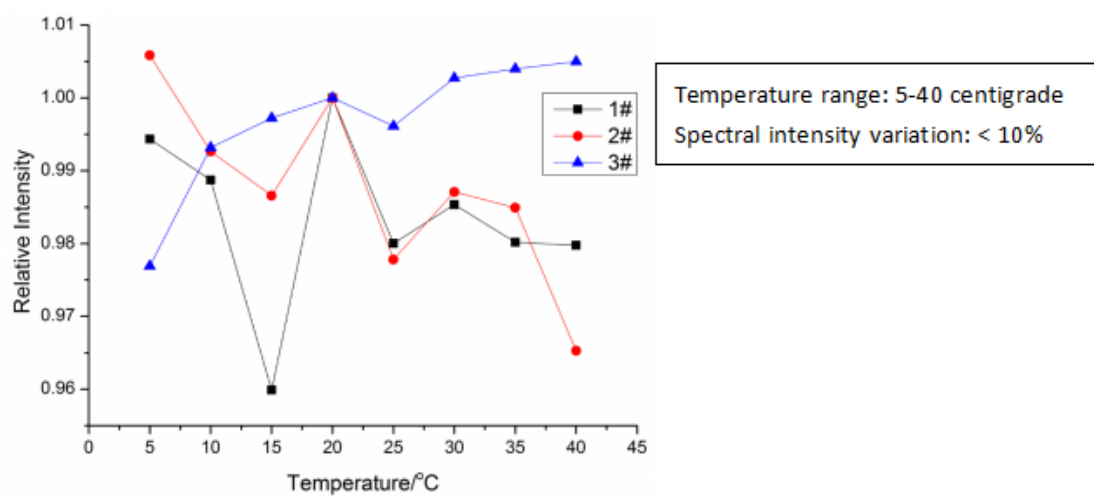


Fig. 3.2 Intensity variation testing from 5 °C to 40 °C of five ATR2000 portable Raman spectrometers

4Order guide

| PN | Wavelength /nm | Power /mW | Wavenumber range/ cm^{-1} | Resolution/ cm^{-1} |
|-----------------|----------------|-----------|------------------------------------|------------------------------|
| EOC-SI-R8300BS- | 473 | 100 | 150-4000 | 7 |

| | | | | |
|---------------------------------------|------|-----|----------|----|
| 473 | | | | |
| EOC-SI-R8300BS-532 | 532 | 100 | 150-4000 | 7 |
| EOC-SI-R8300BS-785-27 | 785 | 600 | 250-2700 | 5 |
| EOC-SI-R8300BS-785-40 | | | 150-4000 | 6 |
| EOC-SI-R8300BS-830 | 830 | 600 | 150-4000 | 7 |
| EOC-SI-R8300BS-1064 | 1064 | 600 | 150-4000 | 10 |
| Available in custom wavelength | | | | |

5. Details

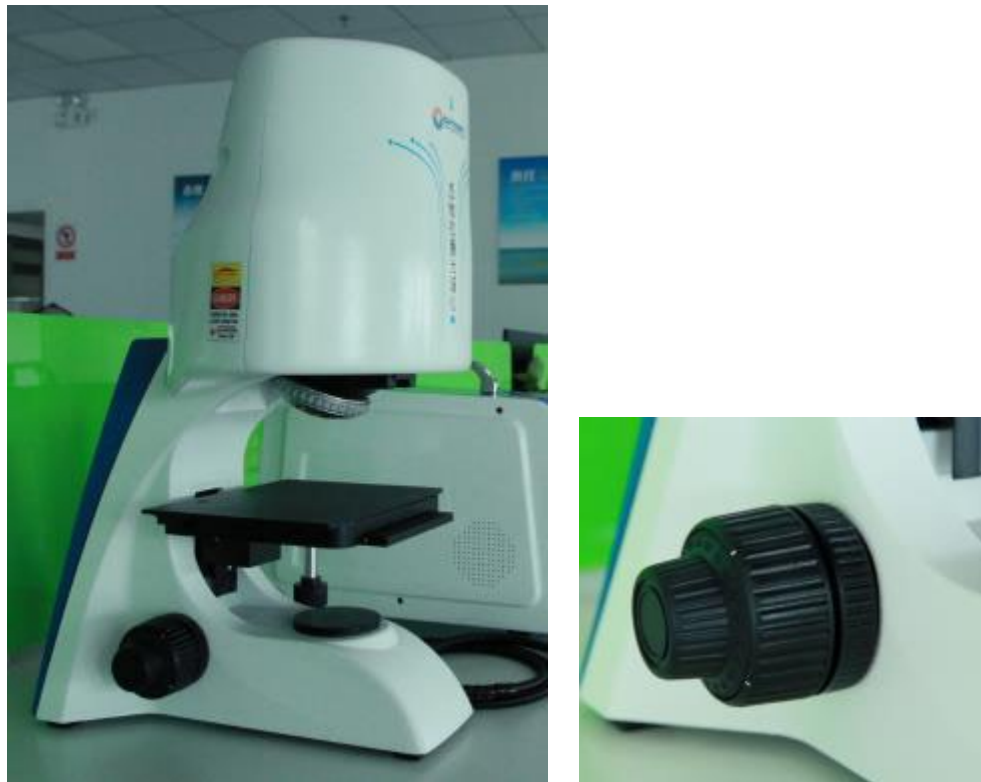


Fig 9 branded high stable microscope platform; X、Y、Z-axis precision adjustable; Adjustable knob work smooth, weight up to 5.6 Kg, very stable.



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

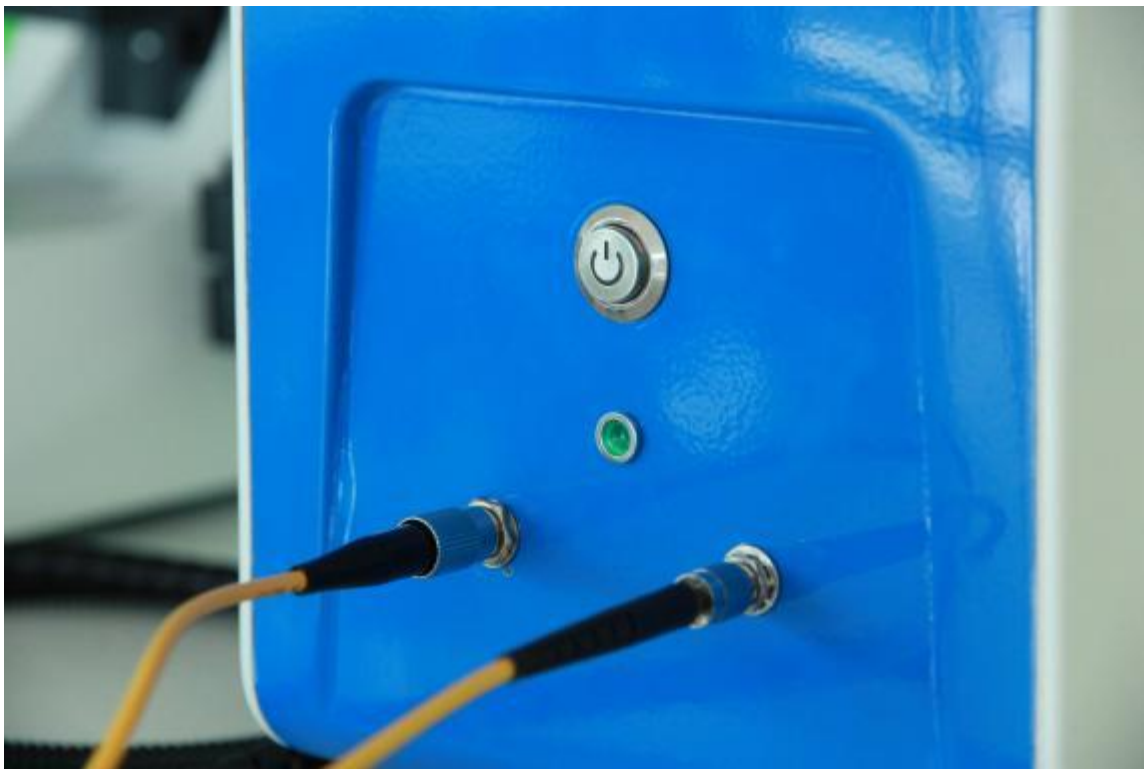


Fig 11 Power button, button on/off as many as 1,000,000 times, high strength laser cable, signal cable is very strong, and laser indicator can intuitively display operating status.



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