SureBlock™ ULTRA NARROW-BAND NOTCH FILTERS

For Highly Selective Wavelength Applications like Low Frequency/THz-Raman Spectroscopy

SureBlock™ ultra narrow-band notch filters are the ideal solution for highly selective wavelength applications like low frequency/THz-Raman spectroscopy. With laser line attenuation greater than 99.99% (optical density: OD 4) and spectral transition width of <10 cm^{-1}, SureBlock™ filters can dramatically improve the ability of any Raman system to resolve low frequency Raman scattering. High transmittance on both sides of the notch enables both Stokes and anti-Stokes Raman spectra to be observed simultaneously. The combined Stokes and Anti-Stokes signal nearly doubles the available signal in the THz range and allows optical temperature measurements.

Available at standard Raman wavelengths: 488, 514, 532, 633, and 785 nm. Custom wavelengths are available on demand. For THz Raman applications the excitation source needs to be wavelength stabilized (e.g. our SureLock™, CleanLine™ or any single frequency Coherent laser) and for best performance a combination with narrow band NoiseBlock™ Beamsplitter and NoiseBlock™ ASE filter is recommended.

FEATURES

- Ultra narrow, OD4+ rejection bandwidth
- Highly repeatable performance
- Access to both, Stokes and Anti-Stokes Raman
- Environmentally stable at high temperature and humidity
- No degradation over time, even under high power illumination conditions

APPLICATIONS

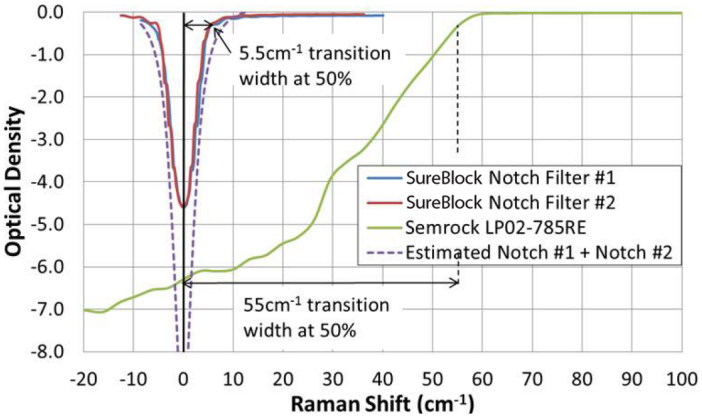
- Low Frequency/THz-Raman Spectroscopy
- Structural Studies of Nanomaterials
- Increased SNR/faster Raman imaging speeds by combining Stokes and Anti-Stokes signal
- Spatial mapping of temperatures in solid, fluid and gaseous media
- Biomedical and Solid-State Laser Systems
- Wide-band Notch Filter Replacement

COHERENT

Specification	488 nm	514 nm	532 nm	633 nm	785 nm
Spectral Transition Width (center to 50% transmission)	<10 cm^{-1}				
Optical Density at Laser Line (each filter)	>4				
Typical Transmission Efficiency (each filter) (%)	60	65	70	80	90
Free Space Aperture Diameter	Standard: 9 mm in 1" mount, Custom sizes available				

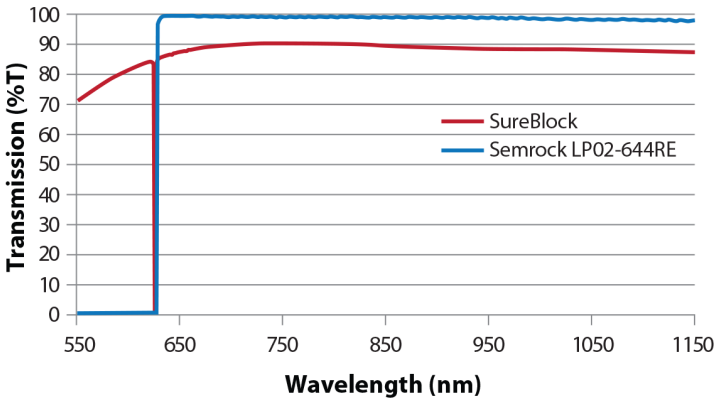
Ultra Narrow Notch Transition to 50% Transmission

785 nm Raman Filter Comparison

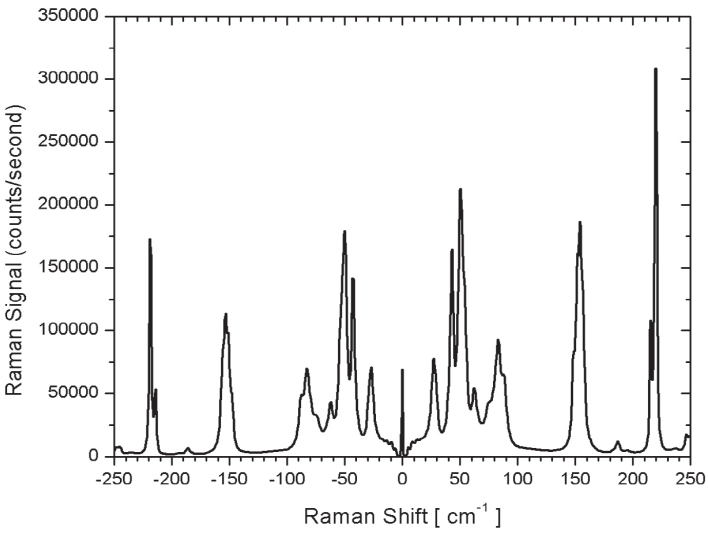


High Transmission on Both Sides of Notch Wavelength

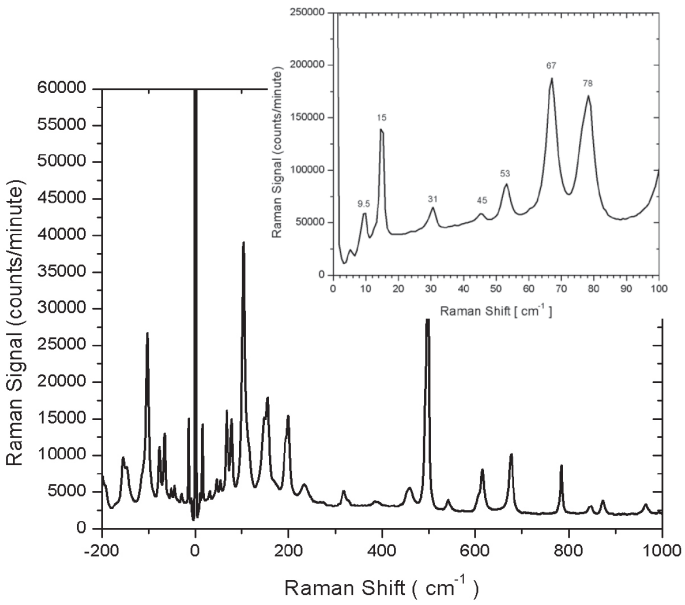
SureBlock™ vs. Semrock RazorEdge



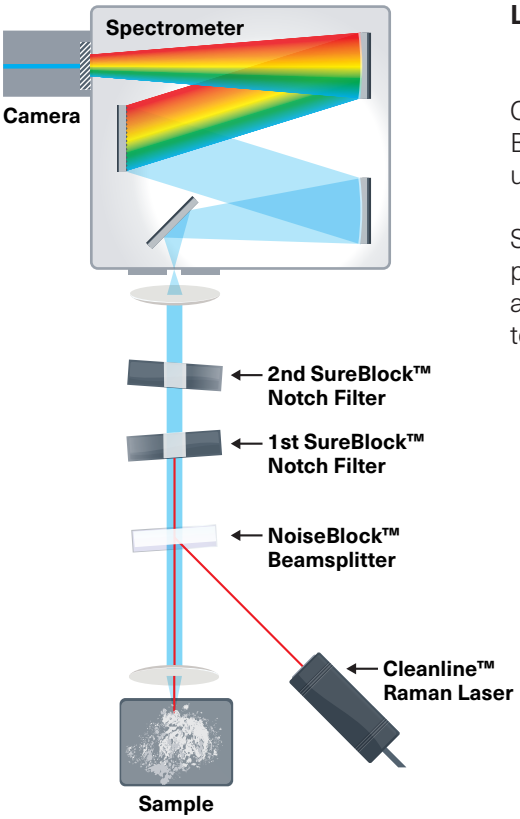
Raman Spectra



Sulfur spectra (below) clearly showing both Stokes and anti-Stokes signals with strong suppression of the Rayleigh scattered light.



Superior low-frequency Raman spectra can be observed. Sharp, identifiable peaks near 10 cm^{-1} are visible in a measurement of L-Cystine.



Low Frequency Raman Spectroscopy

Combine the Coherent SureBlock™ Notch Filters with our NoiseBlock™ Beamsplitter, ASE filter and a SureLock™ Laser to build a compact, ultra-low frequency Raman spectroscopy system.

SureBlock™ Notch filters are reflective volume holographic gratings (VHGs), produced in a proprietary glass designed for long lifetime, high efficiency and excellent transmission. Our fabrication processes are highly stabilized to ensure excellent part-to-part repeatability.

For more information
www.coherent.com