

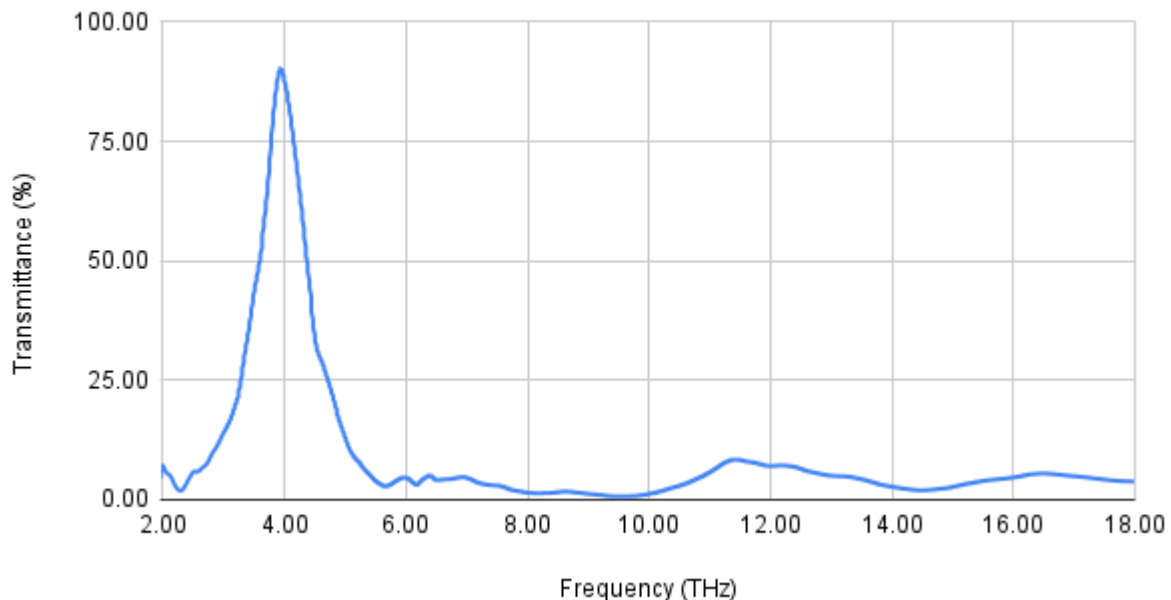
Single-layer Metal Mesh Bandpass Filter Spec Sheet

Nielson Scientific high-performance bandpass filters are designed for mid/far infrared, millimeter wave, and terahertz applications. Our filter specifications are shown below. Average in-band transmission is approximately 80%, with a typical FWHM of approximately $\pm 10\%$. Filters can be customized in both bandwidth and center frequency, with specific ranges given below, and are provided in a range of standard sizes.

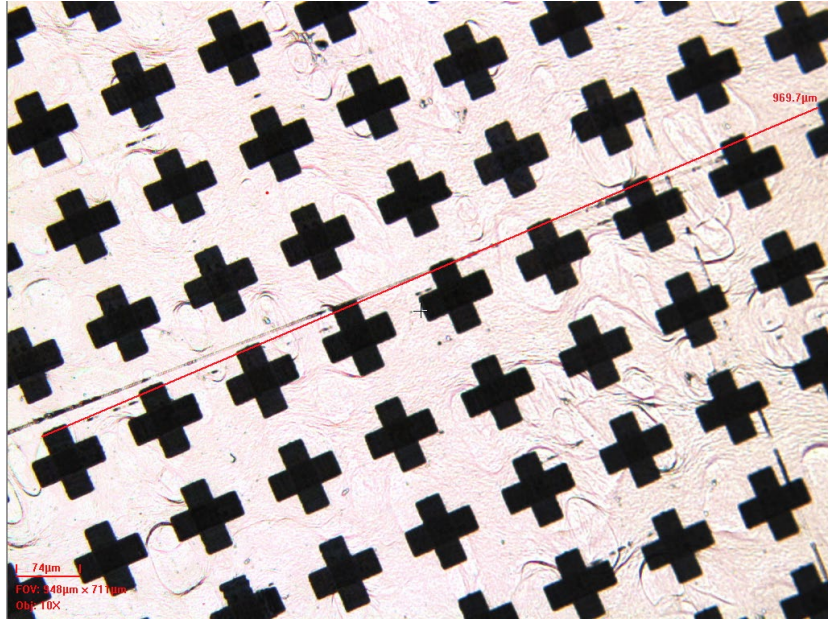
General Specifications:

- **Center Frequencies:** Available from 0.1 - 20 THz ($15 \mu\text{m}$ - 3 mm, $3.34 - 667 \text{ cm}^{-1}$). Purchased filters will provide center frequencies within 2% of stated values.
- **Bandwidth:** Full-width half maximum (FWHM) widths are customizable and can range from 10 - 30%. Other options are available on a custom order basis, depending on desired center frequency. FWHM values are accurate to within $\pm 5\%$ of stated value.
- **In-band transmission:** In-band transmission averages above 80%.
- **Out-of-band rejection:** Single layer filters have an average out-of-band transmission of less than 7%.

Bandpass Filter Frequency Response (4THz)



Representative frequency response of a 4 THz single layer bandpass terahertz filter. Filters are tested on-site in an FTIR tool.



Bandpass terahertz filters are designed using metal mesh circuit models. The above figure illustrates a closeup view of a sample single layer 4 THz filter



The above figures show sample product packaging and design.