LiDAR & Laser Optics Filter Reference

Optical filter guidance for common laser applications

Andover Corporation

This reference matrix provides high-level guidance for selecting optical filters commonly used in LiDAR (Light Detection and Ranging) and laser-based sensing systems.

It is intended to support early-stage system design and RFQ preparation by highlighting typical wavelength usage, filter types, and key performance parameters such as bandwidth, blocking level, and angle of incidence (AOI).

Laser Wavelength	Common Applications	Typical Filter Types	Key Optical Specifications	Design / Selection Notes
905nm	• Automotive LiDAR • Robotics • Short-range time-of-flight (ToF) sensing	**Narrow bandpass**	• Bandwidth (FWHM) • Visible blocking • AOI shift	High solar background drives need for aggressive blocking and center-wavelength stability
940nm	• Short-range LiDAR • Structured light • Vertical-cavity surface-emitting laser (VCSEL) illumination	**Bandpass or notch**	• Bandwidth control • Thermal stability • AOI tolerance	Lower ambient sunlight; often paired with illumination sources
1064nm	• Surveying • Mapping • Airborne LiDAR • Laser rangefinders	**Bandpass with AR coatings**	• Laser damage threshold • Environmental durability	High pulse energy requires robust coating designs
1550nm	• Long-range LiDAR • Autonomous vehicles • Eye-safe laser systems	**Narrow bandpass**	• Temperature drift • AOI sensitivity • Substrate selection	Eye-safe operation enables higher permissible output power

Common optical terms such as FWHM (full width at half maximum), AOI (angle of incidence), AR (anti-reflective), and ToF (time-of-flight) are used according to standard industry definitions. For more on Andover's support for LiDAR applications, visit **andovercorp.com/LiDAR**

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