

LiDAR & Laser Optics Filter Reference

Optical filter guidance for common laser applications



This reference matrix provides general 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 Considerations	Design / Selection Notes
905nm	<ul style="list-style-type: none"> Automotive LiDAR Robotics Short-range time-of-flight (ToF) sensing 	Narrow bandpass Wideband bandpass	<ul style="list-style-type: none"> Bandwidth (FWHM) Visible blocking AOI shift 	High solar background drives need for aggressive blocking and center-wavelength stability
940nm	<ul style="list-style-type: none"> Short-range LiDAR Structured light Vertical-cavity surface-emitting laser (VCSEL) illumination 	Bandpass or notch	<ul style="list-style-type: none"> Bandwidth control Thermal stability AOI tolerance 	Lower ambient sunlight; often paired with illumination sources
1064nm	<ul style="list-style-type: none"> Mapping and Surveying Airborne LiDAR Targeting / alignment Laser rangefinders 	Bandpass with AR coatings	<ul style="list-style-type: none"> Laser damage threshold Environmental durability 	High pulse energy requires robust coating designs
1550nm	<ul style="list-style-type: none"> Long-range LiDAR Autonomous vehicles Eye-safe laser systems 	Narrow bandpass Notch Beamsplitter	<ul style="list-style-type: none"> 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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