

Capabilities

DESIGN & ASSEMBLY HOUSE

Geared for Complex Optical Challenges

Designing optical systems for advanced technologies takes expert knowledge and expert design

photon gear

Turn to Photon Gear.

Let's talk about your optical challenges.

Contact Us



Rely on Photon Gear for precise integration between design, prototype, and production.

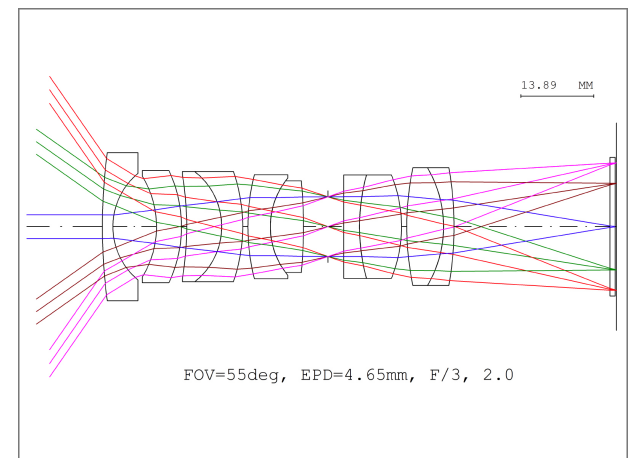
OPTICAL LENS DESIGN

For Demanding Applications

Our highly skilled team will solve a specific challenge, optimize your design, or manufacture a complete high performance opto-mechanical system. Recent optical design and assembly projects include:

- High NA lenses (0.9) performing at 0.03 waves RMS
- Deep UV (266 nm) to the Near IR
- UV wide-field scan lenses
- Image relay lenses
- Large field fluorescence objective lenses
- Atom imaging lenses
- Athermalized telecommunication lenses

Design software tools include CodeV, Zemax, FRED, SolidWorks, and AutoCAD as well as in-house software for analysis of special application areas.



Wide-angle custom test lens for evaluating AR/AV systems.

GUARANTEED

We specialize in the most challenging applications and assemblies. We guarantee: if there's an easier or less expensive approach, we'll tell you. And if we can't solve it, we'll tell you who can.

HIGH PERFORMANCE OPTICAL ASSEMBLIES

Repeatable Precision That Improves Product Performance

Our skilled optical assembly technicians work on high performance systems in our [cleanroom facility](#), which is equipped with custom assembly stations for sub-micron element alignment.

Examples of lens systems we've made:

- Wide angle lenses for AR/VR testing



High NA objective lenses

Some of our most demanding lenses for semiconductor

- Large field laser scan lenses
- Biomedical objective lenses
- Fluorescence imaging systems including high NA objectives
- LED illumination systems
- Ultra-precise null lenses for aspheric testing
- Multi-wavelength, high NA objectives for DNA analysis
- Ultra-small assemblies for remote inspection
- Visual optics for helmet-mounted-display HMD

processing operate at high numerical aperture (0.9) and performance is better than diffraction limited, often <math><0.03</math> waves rms.

If we need a specific type of opto-mechanical assembly, we go to them first.

—Scott Anderson, LensAR

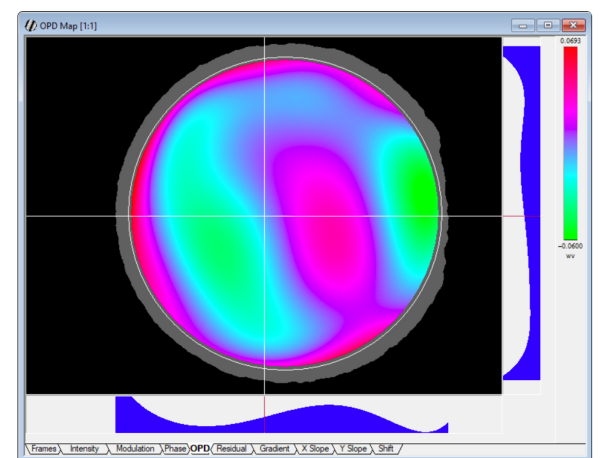
MULTI-WAVELENGTH INTERFEROMETRY & MTF TESTING

Pushing Beyond Traditional Optical Design and Testing

High performance optical testing is required to ensure the performance of the system. Our custom interferometry services test at wavelengths that range from UV to mid-IR wavelengths in a stable, low noise environment for the most accurate data available.

Unique test capabilities:

- Interferometric measurement between 266 nm to 1570 nm
- Modulation Transfer Function testing (MTF)
- Focal length measurement
- Lens metrology
- Autopsy of poorly performing customer-supplied lenses
- Custom instrumentation
- Custom software development for specific analysis
- Precise optical system alignment



Our custom interferometers, operating at 18 wavelengths, enable testing of widely different optical systems.

ABOUT PHOTON GEAR, INC.

Photon Gear provides custom optical design and engineering services, full prototype to production high precision lens assemblies, and multi-wavelength test and measurement services.

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