Photonic solutions supporting advanced optical technologies

Laser and optical systems design

Photonic solutions
For a tailored, cost effective response to your Photonic needs, talk to BAE Systems.

Our specialised teams have been delivering high-end, precision optical design, development, engineering, manufacturing and support solutions in Australia for the past 30 years.

For all your optical work, we offer practical problem solving for the most complex challenge with quick turnaround, all in-house and all underpinned by a real commitment to excellent customer care.

Manufacturing
- Optical thin films
- Diamond turning
- Glass manufacturing
- Optical assembly and testing

Design and development
- Infrared thermal imaging
- Laser systems design
- Optical systems design

Delivering solutions to:
- Defence and aerospace industries
- Industrial laser companies
- Medical equipment manufacturers
- Federal Government agencies
- Photonics companies
- Government and private research
Laser and optical systems design

BAE Systems photonic design and development facility is a centre for photonic design and system performance modelling.

We have comprehensive proficiency across optical, mechanical and electronic fields for:
- Infrared imaging systems design and performance modelling
- Advanced optical and illumination design
- Laser engineering (solid-state and diode)
- Opto-mechanical design and drafting
- Atmospheric propagation modelling

Applications

This capability is routinely applied to:
- Long range, naval, thermal imagers and rangefinders
- Diode-pumped Q-Switched lasers
- Telescope design for transmitters and receivers
- Target detection, designation and illumination
- Day/night aiming devices
- Laser 3D profiling
- Sensor performance prediction
- Designs for operation in harsh environments
- Laser classification and safety analysis

For more than two decades we have applied our skills to advanced niche and high volume applications for thermal imaging, range finding, medical, terrain mapping and night vision products.

Software tools

Our photonic design and performance analysis is performed in close conjunction with electronic and mechanical performance analysis using a variety of commercial CAD software and proprietary software models including:

Optical Systems
- ASAP
- ZEMAX

Atmospheric optical propagation
- LOWTRAN 7, PCLnWIN (FASCODE/HITRAN),

Laser
- Proprietary In-house Software

IR systems performance
(proprietary in-house software)
- IR imager range performance
- IR imager MRTD prediction
- IMIRST (Radiometric IR model of IR sensor response)
- Laser Rangefinder and Laser Radar Models

Mechanical design software
- ANSYS, AutoCAD, Inventor, Creo Parametric

Electrical design software
- Mentor Graphics, Altium Designer

Mathematical / Systems design software
- Matlab, MathCAD, Mathematica

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