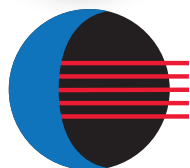


Full Spectrum. Full Calibration. Full Testing.



# COLOSUS

Collimated Optics, Software  
and Uniform Source Solutions

  
advancing the technology of light

  
SANTA BARBARA INFRARED, INC.  
a HEICO company

# Combining the Expertise of Two Industry Leaders to Give You An Immense Range of Complete Electro-Optical Testing Solutions



**Labsphere** is the world's premier source for ground-based calibration systems for large earth observing satellites, imaging systems and remote sensing optical calibration solutions. Labsphere is committed to always being on the cutting edge in measurement uncertainty and system performance that enables the next generation of remote sensing, climate science, military hardware and tactical calibration. Our engineering team designs standard and custom products to solve your radiometric challenges.



**Santa Barbara Infrared** is the leading supplier of sophisticated, integrated, multi-function E-O test systems used by the commercial, science and military markets for laboratory, factory, depot and field test environments. SBIR is capable of complete design activity to support all aspects of E-O testing including mechanical, electrical, electro-mechanical, electro-optical and software/firmware design. SBIR's practical, design-for-manufacturing approach results in both production and custom systems that are highly reliable and user-friendly.

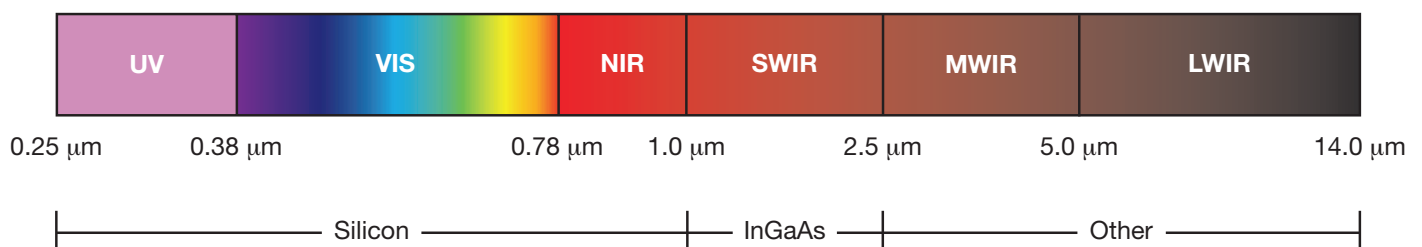
## One Family of Test and Calibration Solutions Spanning the Two Worlds of VIS to IR

- One Software
- One Footprint
- One Calibration
- One Call for Support
- The Best of Two World Class Companies
- Creating a New Standard Platform for the Evolution of Test Specifications

## Comprehensive 0.3 - 14 $\mu\text{m}$ Solutions

- Traceable Radiance/Irradiance
- Technician/Development/Programmers Level for Test Development and Execution
- Collimated, Spatial & Flood Characterization
- VIS, NIR, SWIR, MWIR, LWIR

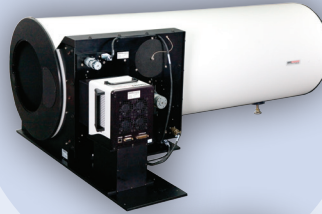
## UV-VIS and Infrared Spectrum



# COLOSUS Systems

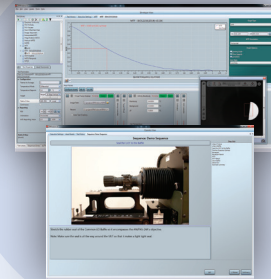
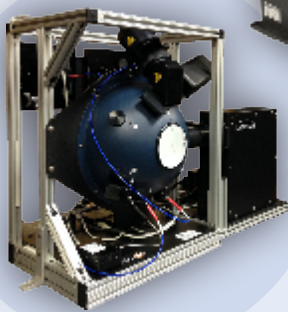
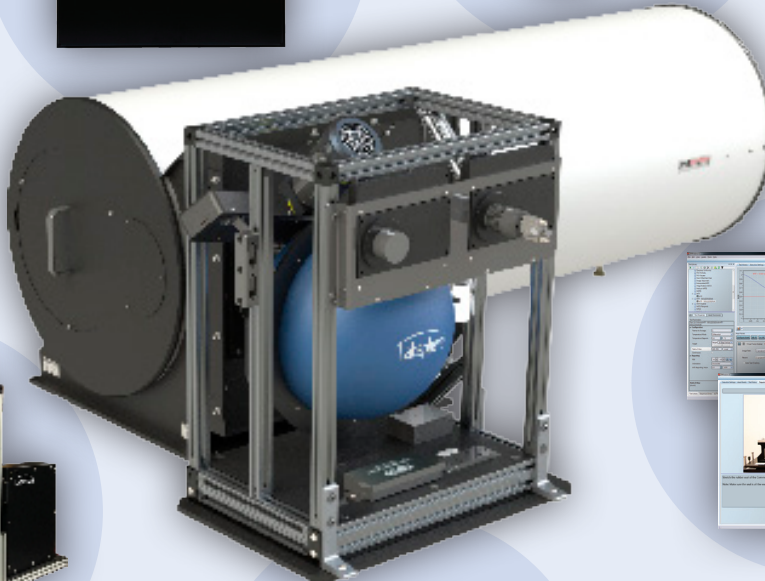
## Target Wheels

- Rugged design
- 6, 12 and 16 position automated wheels
- Laser cut features for precise dimension specifications
- Huge range of precision targets to meet all testing needs
  - Emissive or reflective targets
- Custom designs



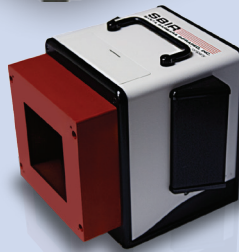
## Collimators

- Off-axis Newtonian designs
- 6", 8" and 12" apertures
- Optics optimized for bands
- Optional non-infinite focus capability
- Custom designs including larger apertures and focal lengths



## Integrating Sphere Systems

- HELIOS®-based modular systems sources and materials to suit 0.3-14μm range
- 1200K-6500K or adjustable CCT solar radiance levels and spectrums
- Night vision levels
- Huge dynamic ranges ( $>1e10$ )
- Absolute traceable calibration
- Monitoring options: broadband, multispectral or spectral
- Color and tuneable spectrum options
- Custom designs for any application



## Blackbodies

- Variety of temperatures from  $-40^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$
- Aperture sizes from 4" to 12"
  - COLOSUS requires a 4" aperture
- Unparalleled emissivity option for enhanced radiometric control – emissivity  $> 0.998!$
- Excellent temporal and thermal stability (mK)
- Uniformity  $>98\%$
- Accuracy of  $0.010^{\circ}\text{C}$
- Custom Designs

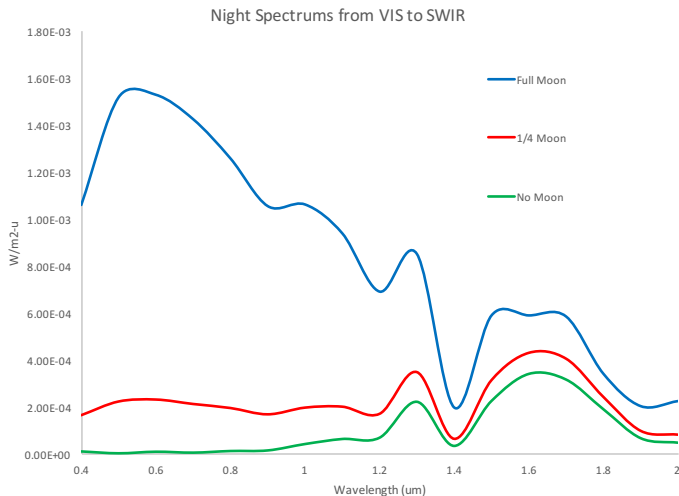
## IRWindows™4

- Most advanced E-O software suite available
- Widely used in commercial, government & military establishments
- Core control of all system assets
- Ergonomic, adaptable, easy-to-use GUI
- Operator, developer and programmer modes
- Supports  $>100$  standardized radiometric, laser and thermal tests
- Supports all standard framegrabber formats including Analog, GigE, Camera Link, DVI, CoaXPress, Firewire, HD 720 & 1080i (SMPTE 292M, 296M, 259M, 274M), USB3.0 and more!
- Custom camera and framegrabber support
- SQL database collection of data
- Custom test design and reports

# COLOSUS Performance

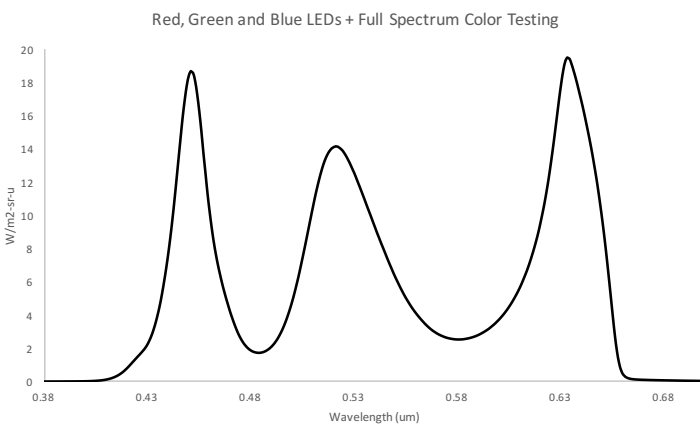
- Huge Dynamic Ranges
- Broadband and Blackbody Sources
- Solar Spectrums
- Color, Tuneable & Monochromatic Solutions
- Traceable Calibrations
- System Control & Standard Tests in IRWindows™4

## Calibrate in the Dark



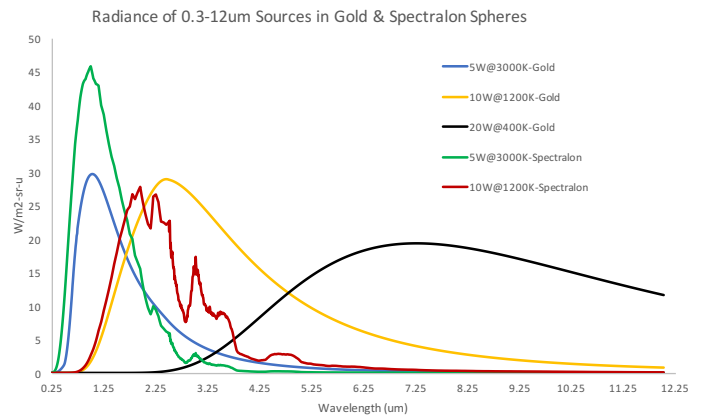
Use night sky spectrums and levels for instrument verification. Combine sources or filter sources to suit the test needs. Today's night vision systems are challenging not only visible ranges but extending to the SWIR for enhanced performance and sensor fusion. COLOSUS dynamic range can cover day levels and night levels continuously in one system.

## Pick a Color...Any Color (or Visible Spectrum)



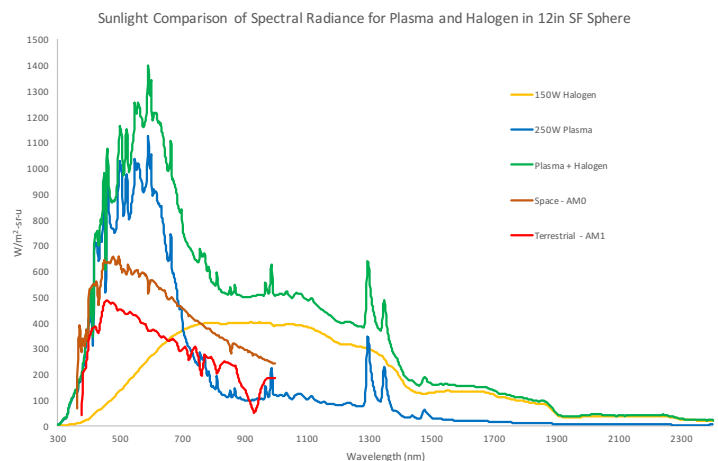
COLOSUS adds tuneable LEDs, lasers and other innovative sources into your test arsenal. Test your R-G-B camera for absolute performance, or tune the spectrum in the visible to match standard illuminance or color chart reflectance values. Don't estimate color performance and white balance – Test it! Add laser wavelengths or monochromatic spectrums to narrow in on your application needs.

## Cover the Entire VIS-LWIR Spectral Range



COLOSUS extends the radiance possibilities from the VIS to the LWIR with a variety of sources, spheres and blackbodies for complete calibration of your instruments. Select, combine and tune your calibration sources to match the dynamic range and spectral performance of your instrument.

## Test at Solar Levels with Huge Dynamic Ranges



Halogen spectrums are the industry standards, but often represent problems for advanced instrumentation as they are "red-weighted" sources leaving your test lacking in blue-weighted solar spectrums. COLOSUS systems add innovative plasma and xenon sources so you can test with tuneable spectrums actually resembling solar reflective target spectrums and levels. Test as you Fly and Fly as you Test for highest accuracy.





# IRWindows™4

## Complete Control, Real Time Imaging and Standard Testing

Fully automates the execution, data collection and results analysis  
for industry standard E-O performance tests

### IR Tests (50+ available)

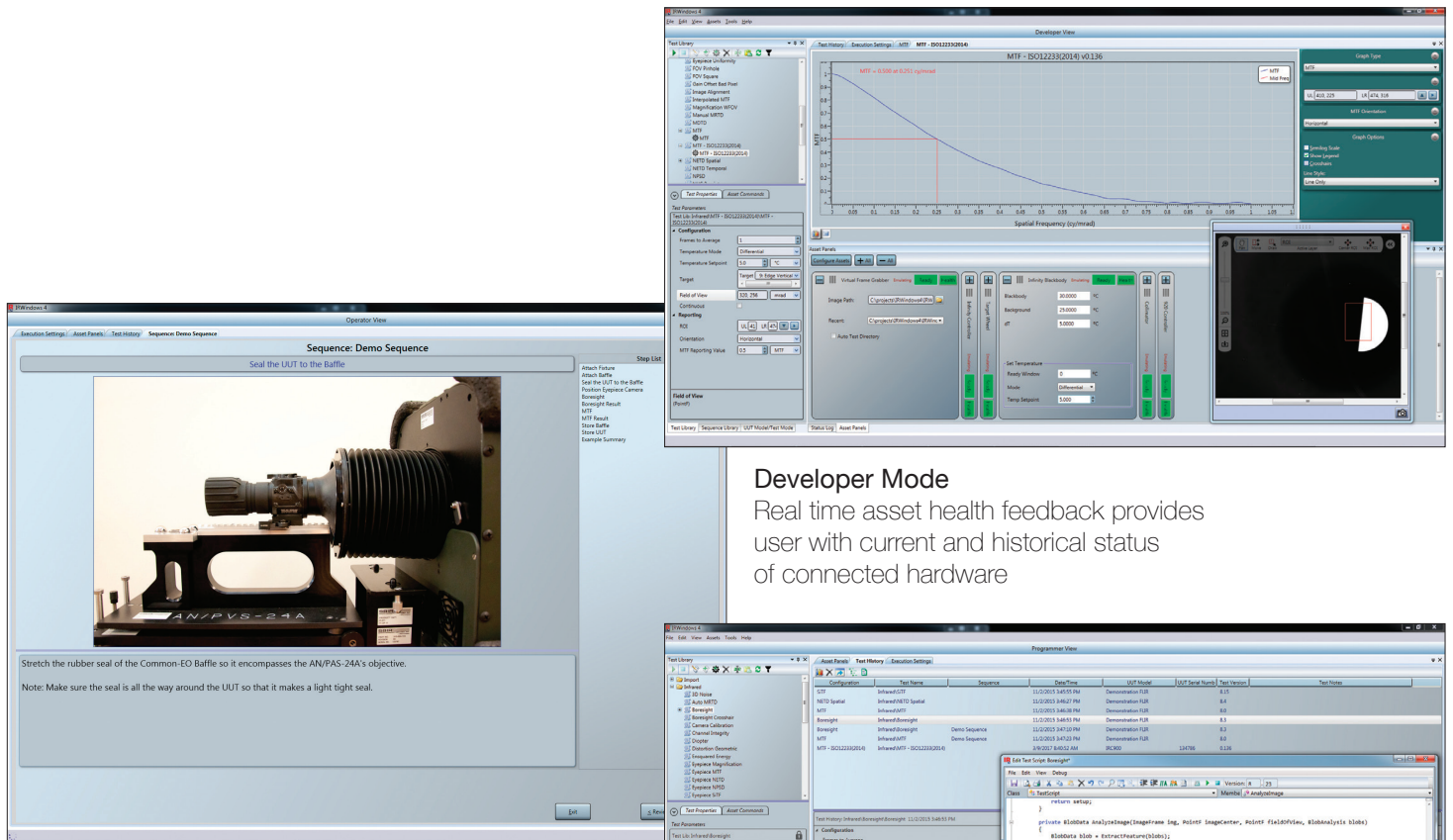
- NETD (Spatial, Temporal & 3D)
- SiTF
- MTF (Interpolated, Continuous)
- MRTD (Manual & Auto)
- Gain, Offset, Bad Pixels (GOBP)
- Boresight
- Distortion
- Uniformity
- And more!

### Visible Tests (40+ available)

- Responsivity
- Noise Equivalent Input
- NETD
- MTF (Interpolated, Continuous)
- Field of View
- MRC
- Boresight
- Distortion
- Uniformity
- And more!

### Laser Tests (15+ available)

- Beam Divergence
- Laser Energy
- Laser Power
- Laser Presence
- Laser Pulse Width
- Boresight
- Atmospheric Extinction Ratio
- And more!



### Operator Mode

Easily configure test program instructions (TPIs) with text, images and video for technicians to follow

### Developer Mode

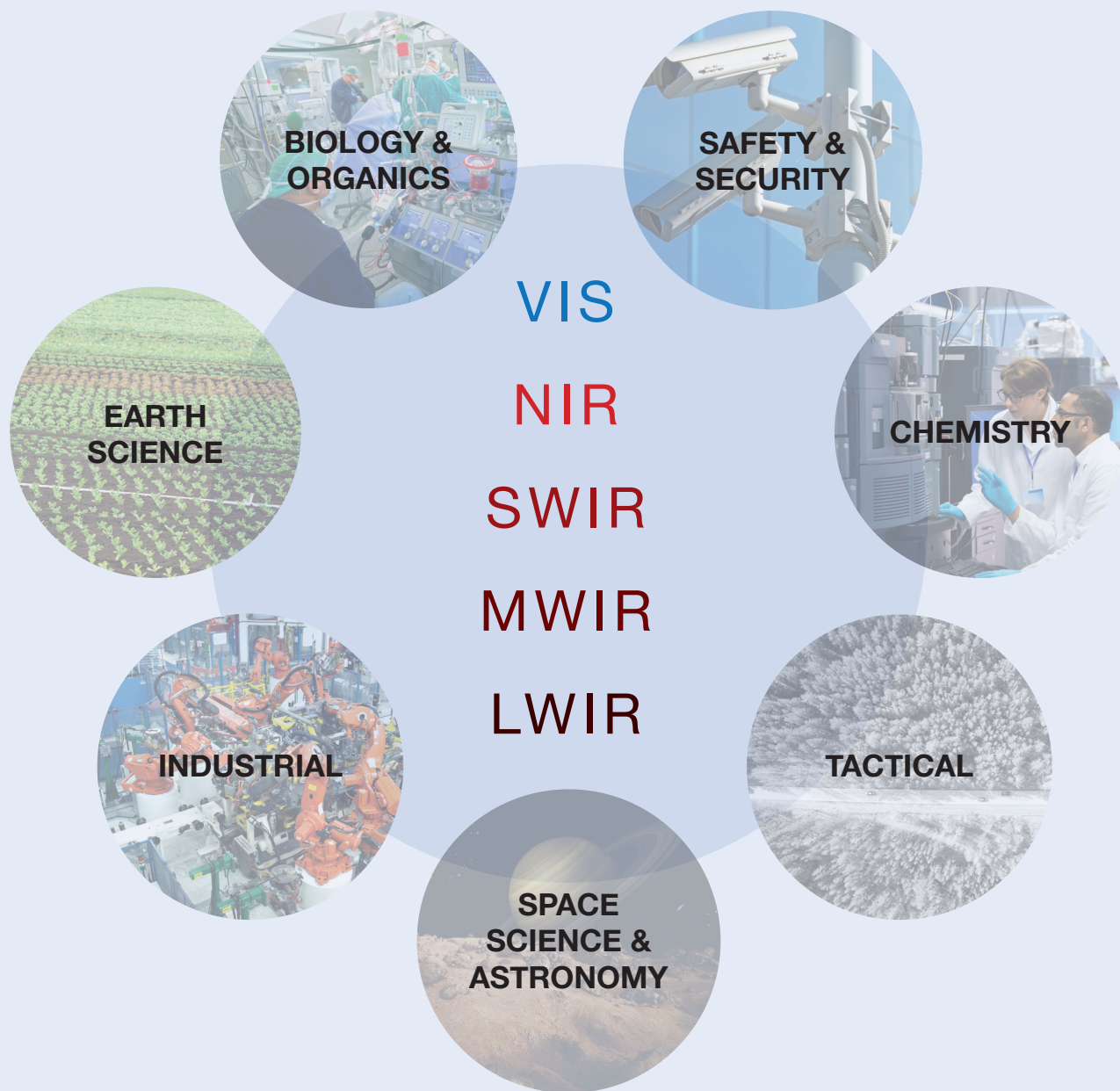
Real time asset health feedback provides user with current and historical status of connected hardware

### Programmer Mode

100+ tests including: visible, infrared, laser and multi-spectral



Collimated Optics, Software and Uniform Source Solutions  
for a World of Radiometric Applications



[sales@labsphere.com](mailto:sales@labsphere.com) [www.labsphere.com](http://www.labsphere.com)



[sales@sbir.com](mailto:sales@sbir.com) [www.sbir.com](http://www.sbir.com)