

# Eigenfield™ Uniform Illuminator Systems

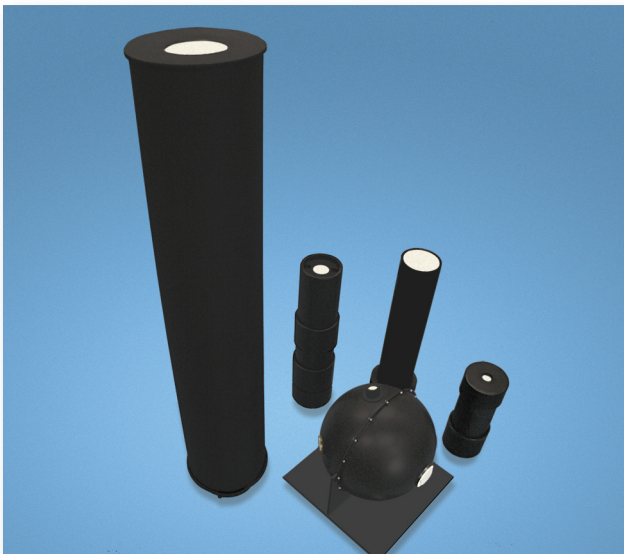
## PRODUCT SUMMARY

Gamma Scientific offers the *Eigenfield*™ line of uniform illuminator systems to serve the needs of uniform and controlled f# illumination applications.

*Eigenfield* illuminator systems have been designed and optimized for use with Gamma Scientific Digital Light Source products. They include both sphere, axial, and hybrid projector systems, and incorporate the latest technology and designs in optical mixing, diffusion, and uniform light projection. When coupled with a Gamma Scientific RS-5, RS-5A, or RS-5B Digital Light Source, *Eigenfield* illuminators meet even the most demanding illumination uniformity and stability requirements.

The centerpieces of the *Eigenfield* illuminator product line are the baffled projector models 42250, 42250-B, and the Radiance/Luminance Converter models 42255 and 42255-B. The projectors and converters combine to form controlled f# projectors and/or uniform radiator systems. *Eigenfield* uniform illuminators are a superior alternative to integrating spheres for many applications; including direct illumination of image sensors and detectors, and as uniformly radiating sources to be imaged by integrated camera/optic modules and/or complete camera/lens systems.

*Eigenfield* illuminators point and place photons exactly where you want them.



### FEATURES

- Sphere, axial, and hybrid configurations available.
- Paraxial operation from f/0 to f/22. Higher f#'s by request.
- Spatially flat or cosine roll-off brightness distributions.
- Illumination field sizes up to 100 mm. Larger by request.
- Standard or free form lens and camera mount interfaces.
- Shrouded assemblies that can be operated in full room light.
- Spatial brightness uniformities up to 99.9%. Higher uniformities by request.
- Light sources can be detached and reattached without realignment or recalibration of the projector.
- Simple reconfiguration from uniform projection beam to uniformly radiating source.
- Lightweight designs do not require extensive mounting hardware and can be operated in any orientation.
- Available as monolithic assemblies that are mechanically compatible with Agilent and other tester systems.

### APPLICATIONS

- Photometric, radiometric and colorimetric testing and calibration of sensors, lenses and imaging systems.
- Testing and calibration of monochromators, spectrometers, and other optical instruments.
- Design and calibration of color display systems.
- Illumination for photochemical probes and other photochemistry and fluorescence applications.
- Almost any controlled illumination application that requires spatial uniformity and/or predefined geometry and brightness distribution characteristics.

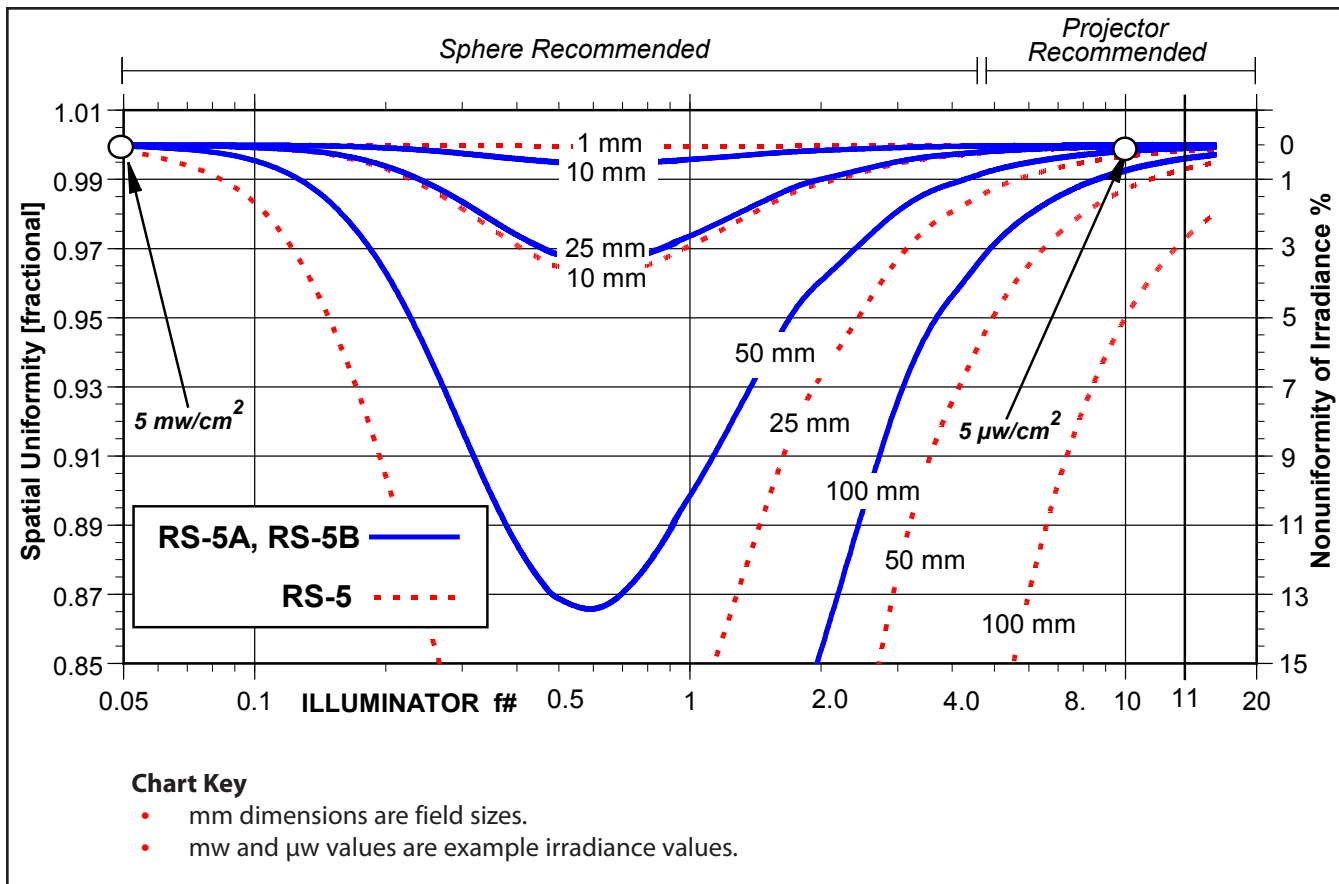


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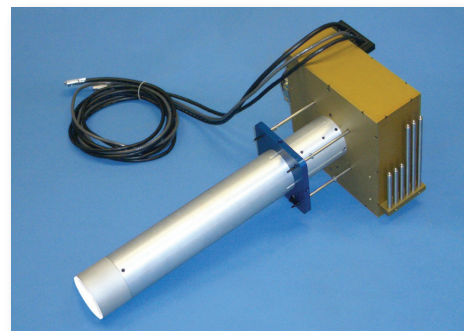
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## SPECIFICATIONS



### Uniform Illuminator Specifications – Lambertian Configurations

Operating f#	± 1 - 5 % depending on f#
Geometric Stability	3 % of dimension
Decenter	10 % of aperture diameter
Tilt	± 2 degrees
Stray Light	1 - 3 % depending on f#
Radial symmetry	1 - 3 % depending on f#
True Parabolic shape	5 % [ $z=(cr^2)/(1+\text{Sqrt}(1-sc^2r^2))$ ] { s=shape }{ c=curvature=1/r, r=radius= $\text{Sqrt}(x^2+y^2)$ }
Uniformity	
Spatial	depends on f# (see chart)
Spectral	1 %
Colorimetric	1 %



Hybrid illuminator combining CW broadband white light and pulsed near-IR laser output into a single uniform illumination field.

### Specifications Note - Super-lambertian Configurations

Performance curves and nominal specifications apply to lambertian projectors only. Super-lambertian configurations are also offered when very high irradiance levels are required. Super-lambertian configurations may vary substantially from nominal performance levels. Ask your regional Gamma Scientific representative for more details.



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