# Static Ceramic Converter

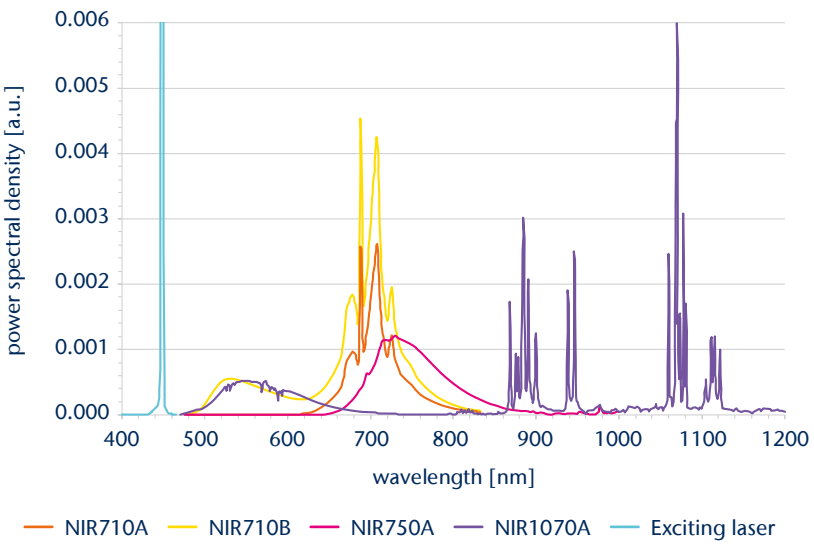
## Unlock the Potential of NIR Technology

Version January 2025

## Transform Blue Laser Light into Near-Infrared (NIR) with Ceramic Converters

SCHOTT's cutting-edge ceramic converters are designed to transform blue laser light into near-infrared (NIR) wavelengths.
Bulk ceramic phosphors pumped by blue laser diodes are able to overcome LED limitations caused by large spot size and radiant exitance and open alternatives for etendue limited applications. Compact static ceramic converters offer broad emission spectra on small emission spot sizes and allow for high radiant exitance.

**Emission spectrum of 115 µm thick materials**




Four types of SCHOTT laser phosphor converters offer a range of wavelengths from the visible spectrum up to 850 nm in broadband, and selected bandwidths exceeding 1000 nm. The far-red to near-infrared spectral range holds significant interest for numerous applications.

**Advantages**

- Small spot sizes
- High radiant exitance based on blue laser excitation, outperforming LEDs
- Fully inorganic solution for high reliability

**Applications**

- Spectral Imaging: superior image quality for research and industrial
- Analytical Spectroscopy (e. g. in medicine, chemistry or forensics)
- Security Monitoring (e. g. iris recognition, smoke detectors, CCTV, defense & surveillance...)
- Medical Imaging: Enhance diagnostic capabilities with precise NIR imaging
- ICG Endoscopy: Accurate visualization in endoscopic procedures

**Forms of supply**

- Ceramic dies on plated copper heatspreaders

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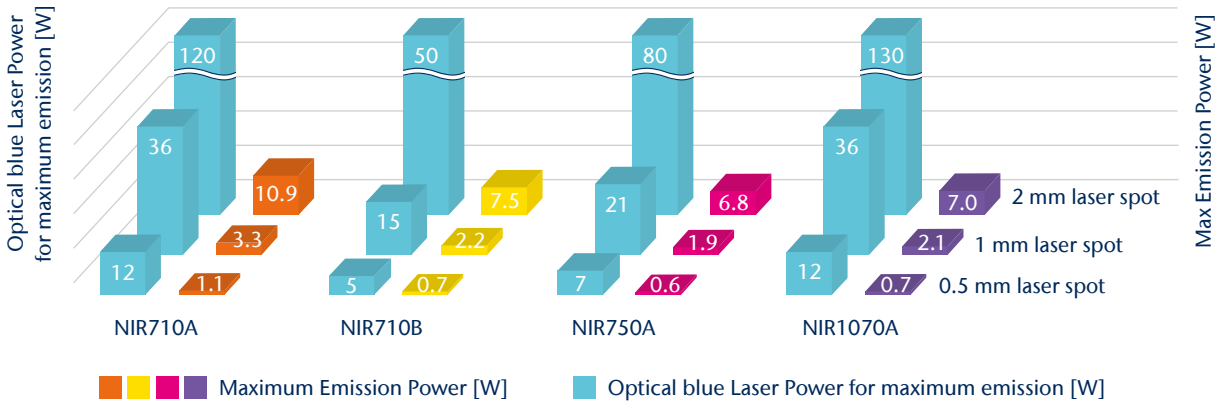
# Transform Blue Laser Light into Near-Infrared (NIR) with Ceramic Converters

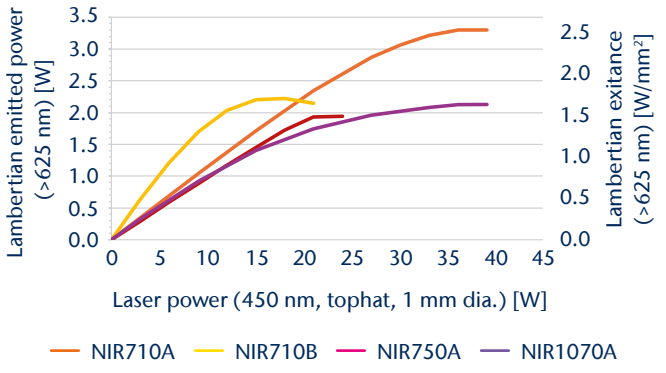
## Technical Characteristics on NIR emitters

### Lambertian emission for a blue laser spot

SCHOTT NIR emitters allow high Lambertian emission for small spot sizes.

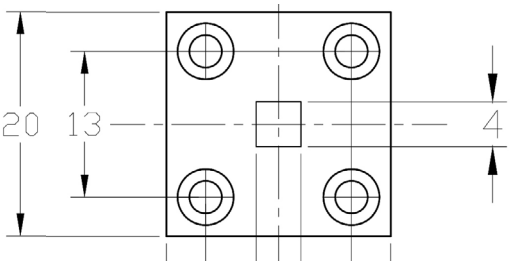



### Lambertian emitted Power [W] and Irradiance limits for a blue laser spot




- Operation above 65 °C on the heat spreader is not recommended.
- Do not exceed irradiance limit for safety reasons.

### NIR standard samples




Ceramic phosphor material of 4 x 4 mm on heat spreader dimensions of 20 x 20 x 4 mm*. Technical drawings and customization available upon request.

### NIR material (115 µm* die thickness, anti-reflection coated phosphor on heatspreader)

| | NIR710A | NIR710B | NIR750A | NIR1070A |
|---|---|---|---|---|
| Low power Efficiency [W/W] | >10 % λ > 625 nm | >18 % λ > 625 nm | >9 % λ > 625 nm | >9 % λ > 800 nm |
| Thermal Quenching | moderate | significant | low | moderate |

- Emission from deep red to NIR
- Excitation by blue laser at about 450 nm
- Based on first measurements on lab samples, low power, converted for static ceramic converter on heatspreader

* Tolerances apply and are available upon request.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SCHOTT AG, Hattenbergstrasse 10, 55122 Mainz, Germany
Phone +49 (0)6131/66-1812, info.optics@schott.com


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