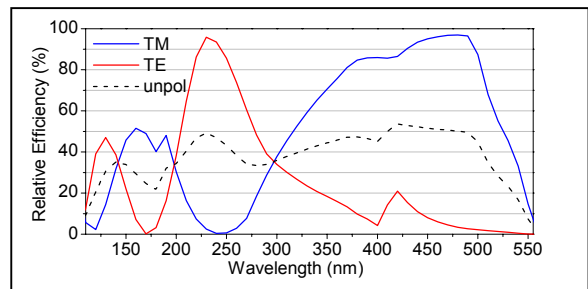
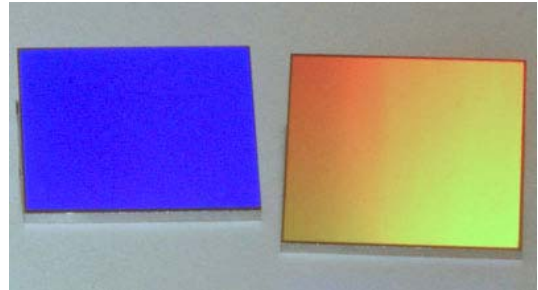
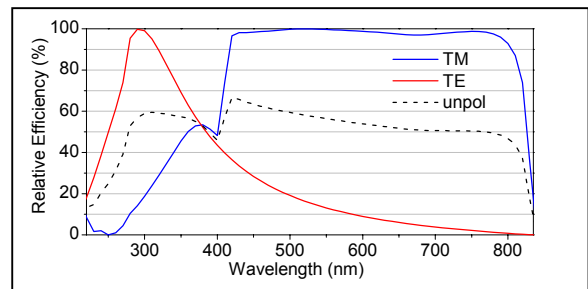


LightSmyth's straight-line binary diffraction gratings are fabricated in silicon (or other materials) by deep-ultraviolet photolithography and subsequent etch – key fabrication methods of the semiconductor industry.

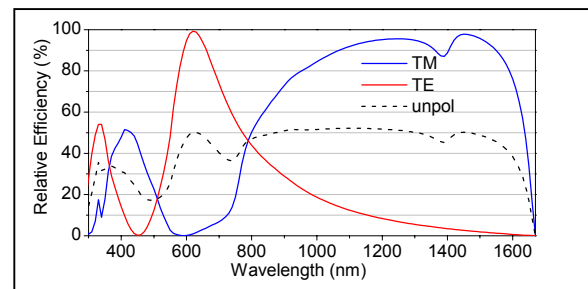
LightSmyth's unique fabrication method minimizes stray light and provides high spatial coherence. Groove depth and duty cycle are optimized to minimize undesirable higher-order diffraction. Each grating is a master, free from replication flaws. Grating surfaces are cleanable and abrasion-resistant. Silicon substrates provide thermal conductivity approaching that of copper and thermal expansion lower than Pyrex making it an ideal general substrate material and in a class by itself for high temperature or power applications. Sub-millimeter substrate thicknesses make these gratings ultra-light and enable device miniaturization.



SLG-C36-1212A-Si, (3600 l/mm)



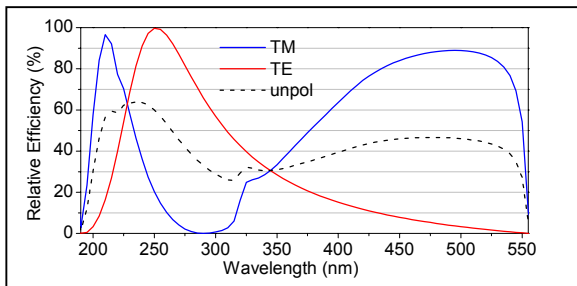
SLG-C24-1212A-AI, (2400 l/mm)



SLG-C12-1212A-AI, (1200 l/mm)

Typical Performance

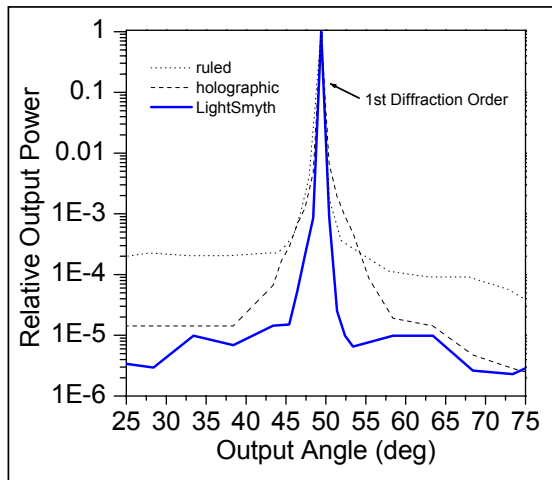
- Diffraction Efficiency -



SLG-C36-1212A-AI, (3600 l/mm)

Note: Efficiency curves are relative (not absolute) and were computed using rigorous electromagnetic theory. Plots are representative only and do not constitute grating specification. Measured grating performance may vary depending on measurement approach and layout.

- Scattered Light Characteristics -



Note: The figure shows relative output power (normalized to first diffraction order peak) in the dispersion plane of a ruled (dotted), holographic (dashed) and LightSmyth (solid blue) 1200 lines/mm grating illuminated by a HeNe laser. **The LightSmyth grating provides scattered light levels up to two orders of magnitude lower than the traditional gratings.** The plot is representative only and does not constitute a grating specification. Measured grating performance may vary depending on measurement approach and layout.

Please refer to www.lightsmyth.com for available sizes and ordering information.

Custom Silicon Gratings

LighSmyth offers custom linear-groove gratings with the following attributes

- Al, Al+MgF₂, Al+Al₂O₃, gold or silver coatings
- up to 12-inch diameter substrates
- up to 7200 lines/mm line density
- variable duty cycle
- line widths as thin as 80 nm
- groove depths up to 400 nm.

Our optical engineers will gladly assist with your with your custom application.