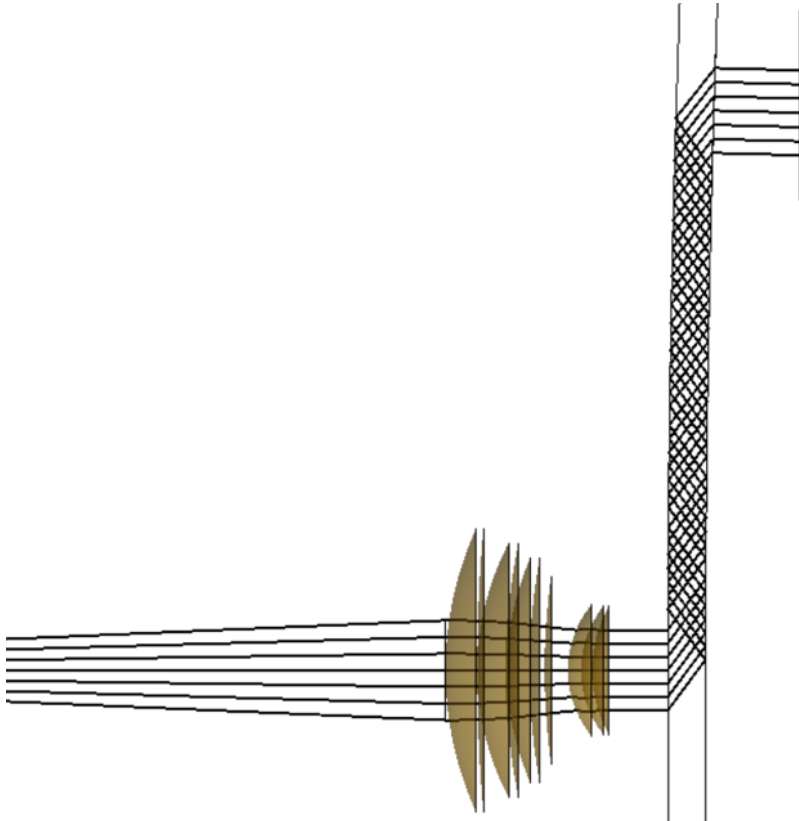


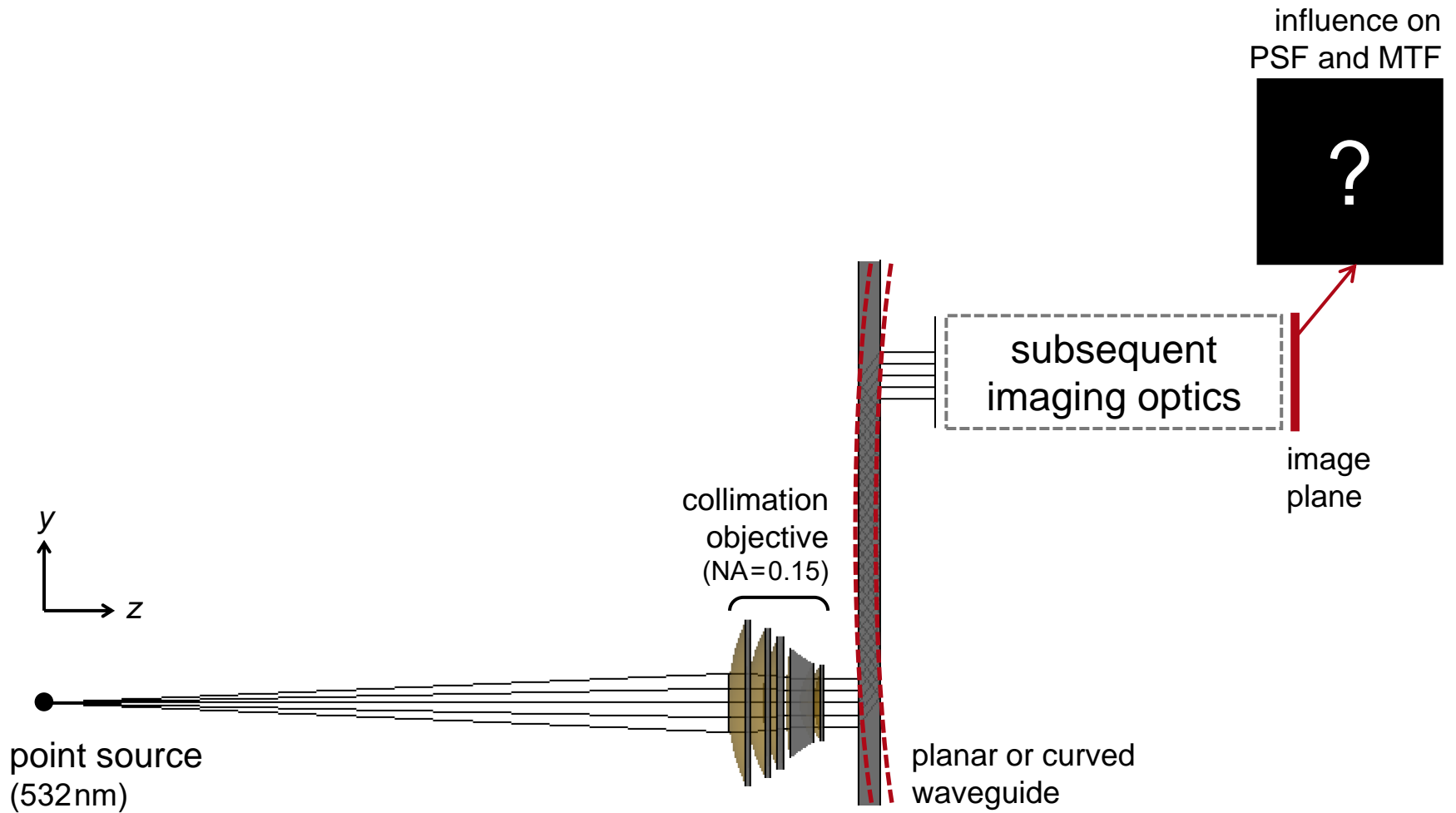
Analysis of Folded Imaging System with Planar or Curved Waveguide

Abstract

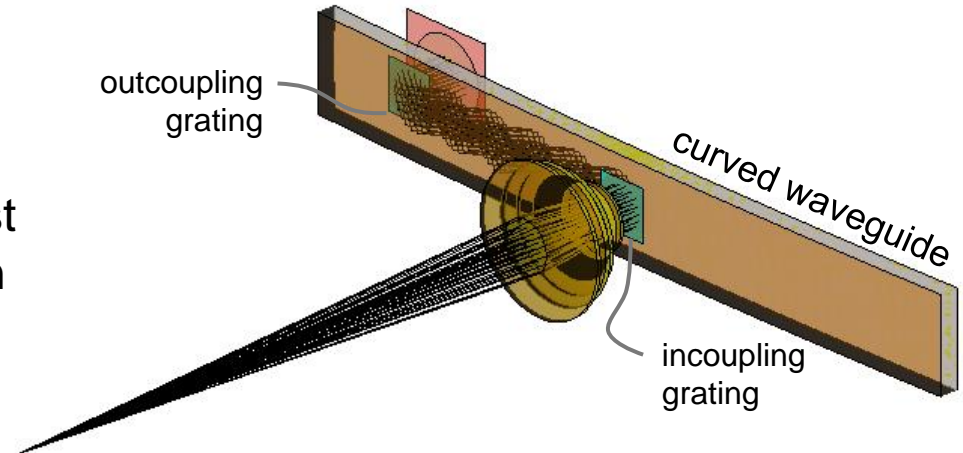
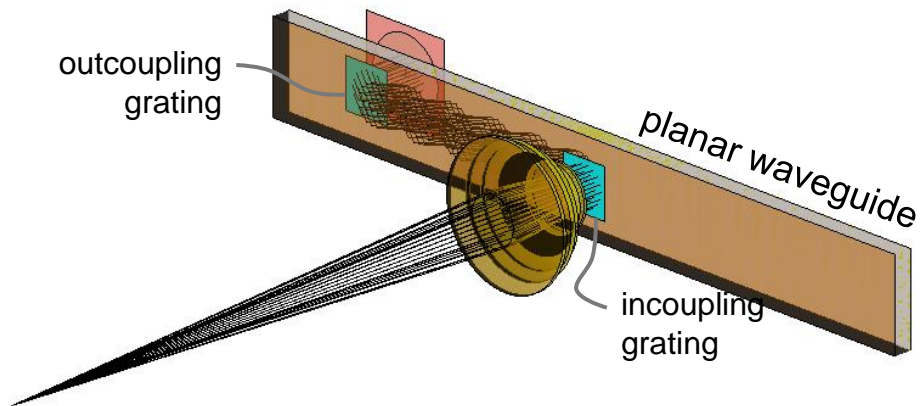


In a near-to-eye display system, the image generation unit, the collimation optics, the waveguide and the in- and outcoupling gratings, form a complex folded imaging system. To evaluate the image quality of such systems, it is important to include the influence from the waveguide structure. In this example, a folded imaging system, with either a planar waveguide or a curved waveguide, is modeled, and the PSF and MTF on image plane are calculated.

Modeling Task



Results



Ray-tracing analysis provides a fast overview of the complete system in space, with either planar or curved waveguide.

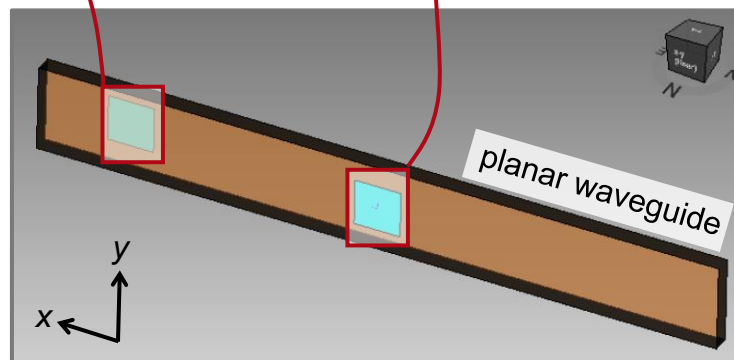
Results

outcoupling grating region

- center at (15, 0mm)
- size 2.7×2.7 mm

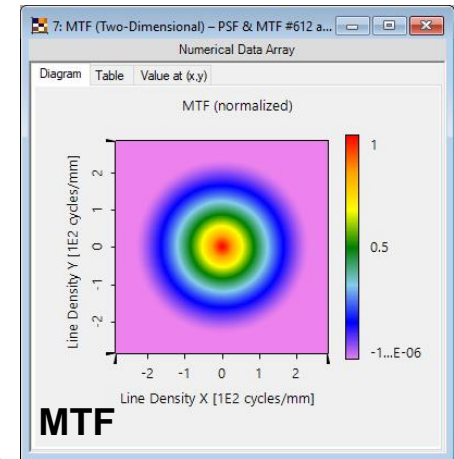
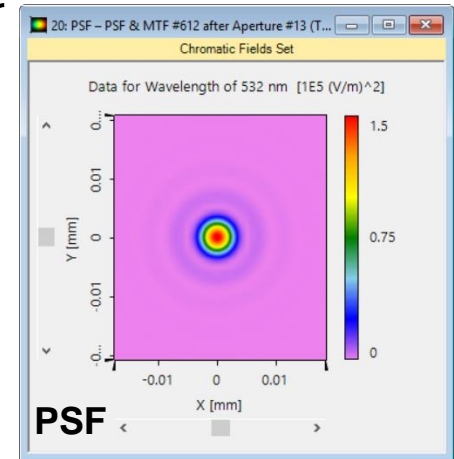
incoupling grating region

- center at (0, 0mm)
- size 2.7×2.7 mm



subsequent
imaging optics

image
plane



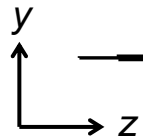
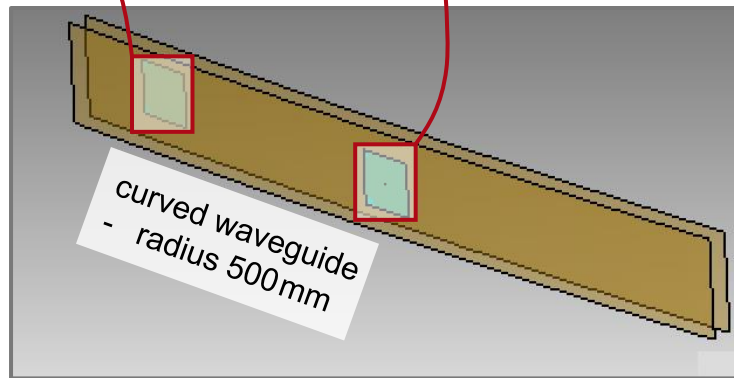
Results

outcoupling grating region

- center at (15, 0mm)
- size 2.7x2.7 mm

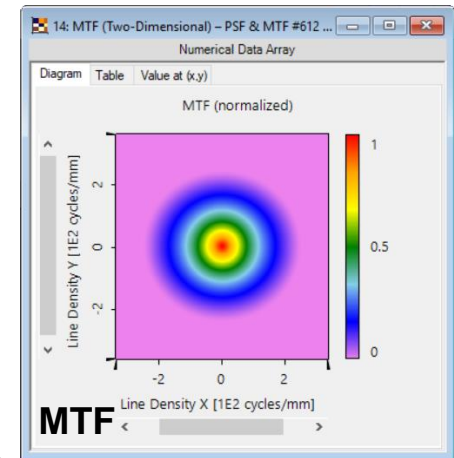
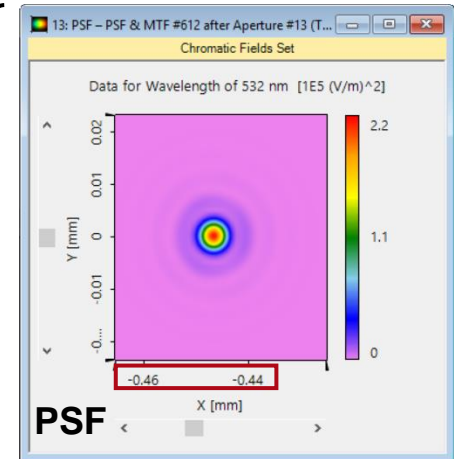
incoupling grating region

- center at (0, 0mm)
- size 2.7x2.7 mm

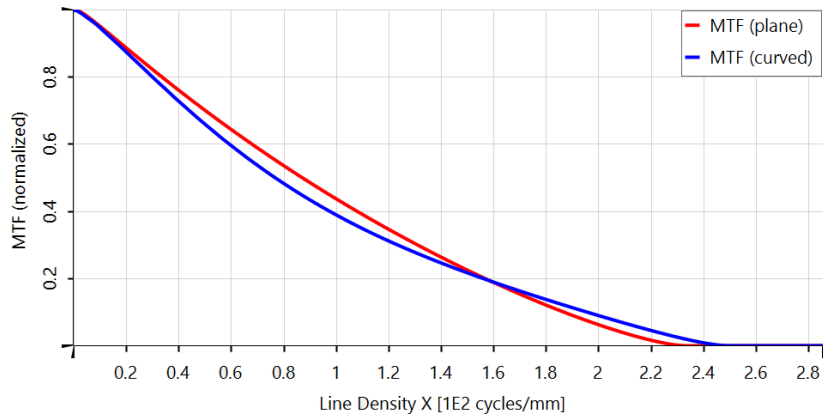


subsequent
imaging optics

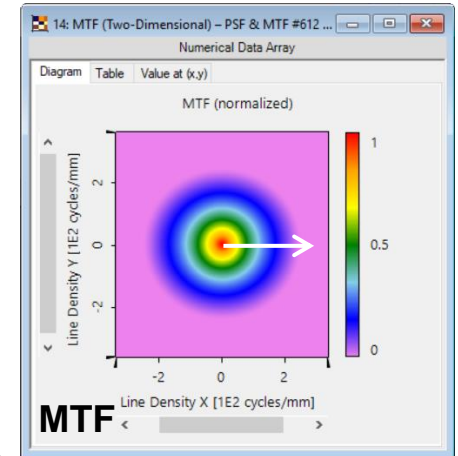
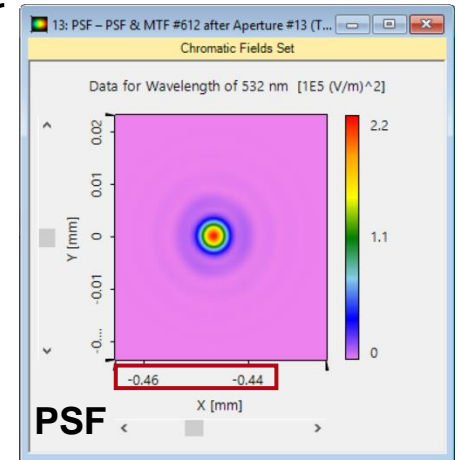
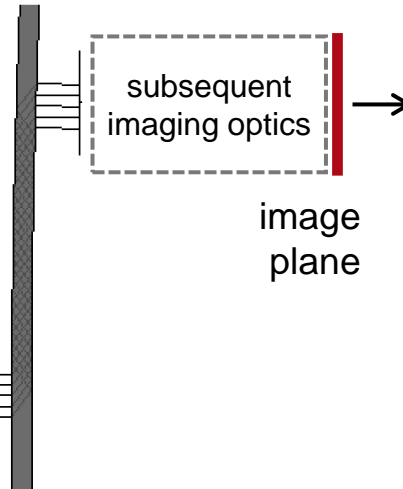
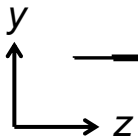
image
plane



Results



comparison between MTFs with full and partial illumination of the aperture



Document Information

title	Analysis of Folded Imaging System with Planar or Curved Waveguide
version	1.0
VL version used for simulations	7.3.0.41
category	Application Use Case
