7x7 Beam Splitter in 2f Setup with a VCSEL Source
Abstract

Diffractive elements like beam splitters can be modeled in complex optical systems. Efficiencies are evaluated rigorously, e.g. by Fourier Modal method (FMM) or RCWA, respectively. Physical optics enables the access to any kind of light information in the desired image plane.
Task: Beam Splitter in a Complex Optical System

VCSEL source
wavelength: 632.8 nm

collimation lens  7x7 beamsplitter  focusing lens
Parameters: 7x7 Beam Splitter

height profile:

rigorously calculated efficiencies:
Results

real color perception:

false color:
Now: Real Collimation Lens (Aspherical Lens)

Result: (including aberrations):
Summary

- Diffractive elements like beam splitters can be modeled in complex optical systems.
- Efficiencies are evaluated rigorously, e.g. by Fourier Modal method (FMM), RCWA, respectively.
- Physical optics and ray propagation techniques available for detailed investigations.
- Physical optics enables the access to any kind of light information in the desired image plane.
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<thead>
<tr>
<th>title</th>
<th>7x7 Beam Splitter in 2f Setup with a VCSEL Source</th>
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<td>document code</td>
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<tr>
<td>version</td>
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<td>VL version used for simulations</td>
<td>VirtualLab Fusion Summer Release 2019 (7.6.1.18)</td>
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</table>
| further reading                     | - [Design and Rigorous Analysis of Non-Paraxial Diffractive Beam Splitter](#)  
|                                     | - [Design of a 3x3 Beam Splitter](#)                        |