Requirement rationale
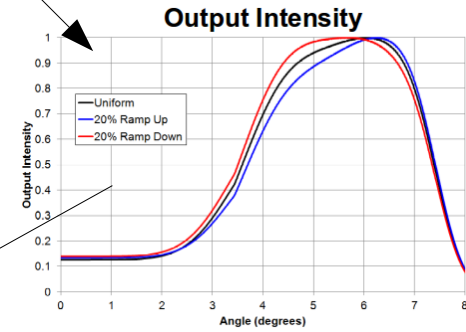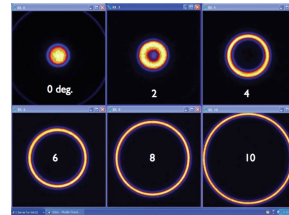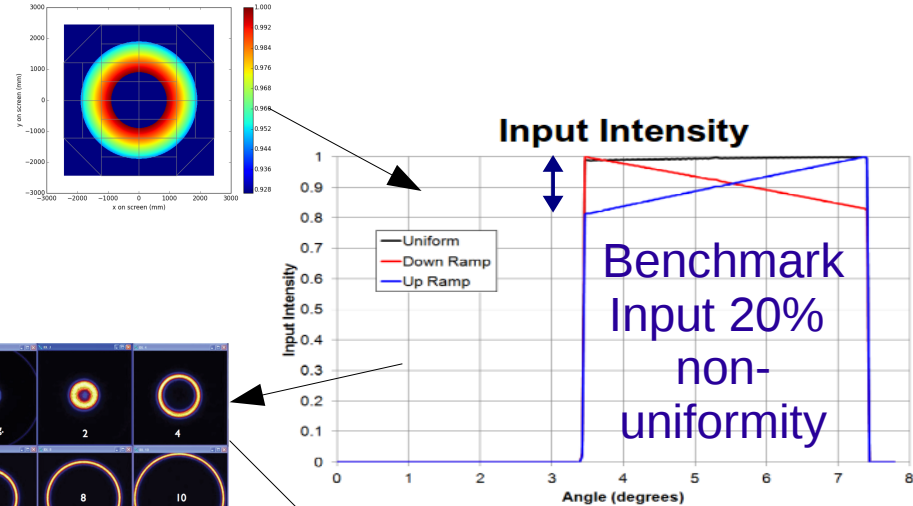## Pupil uniformity: 20%

Pupil uniformity change of 20% → max change of spectro PSF FWHM < 0.2% $\forall\lambda$

Meets requirement on PSF stability of 3% (requirement IN.FBR-5013, see DESI-0581 (v8)).

<u>Full uniformity study by P.Jelinsky</u>

- Light intensity on the screen
  - → angular distribution into the fibers

- The fiber scrambles the light azimuthally and blurs it slightly radially due to Focal Ratio Degradation (FRD)

- Changing angular distribution fiber output fiber
  - → small effect on spectro PSF

Benchmark Input 20% non-uniformity

max change of spectro PSF FWHM < 0.2% $\forall\lambda$ << 3%

Input Intensity

Output Intensity

Dark Energy Spectroscopic Instrument
U.S. Department of Energy Office of Science
Lawrence Berkeley National Laboratory

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