

scanner for color slide material:

three photoelectric sensors
0,01mm image point diameter
4096 (12 bit) luminance range

measurement at each pixel:

3 color values R , G and B

development intent:

colorimetric device driver:

conversion of three color values

R , G and B in colorness

L^* , a^* and b^* (CIELAB system)

problems:

large pixel amount:

approximately 3000×2000 pixels
within a color slide $36\text{mm} \times 24\text{mm}$
often original size larger than
DIN-A2 with drum scanners

*three procedures for optimization
of colorimetric device driver:*

adaptation of the spectral
sensitivities at the three
tristimulus value functions

optimization of 3×3 - or
 3×6 -device matrices for
conversion from **RGB to $L^*a^*b^*$**
with 17 CIE-test colors

calculation of the spectral color
reflection or transmission
at each image position, for example
with three densities of three known
dyes (color pigments),
only possible for
homogeneous material
(slide material, printing material)

