

**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  $3000 \times 2000$  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  $3 \times 3$ - or  
 $3 \times 6$ -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)

