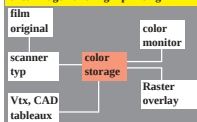
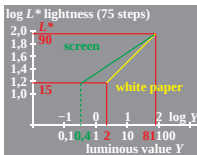


diagram for interfaces in the area image handling - printing



Ae250-1



Ae250-3

linear scan area	Y	lightness- area	L* L*	lightness color h* no. d
76,6 ... 85,5	87,5 ... 92,4	90 FFF	4095	
60,1 ... 68,1	77,5 ... 82,4	80 DDD	3549	
45,6 ... 52,5	67,5 ... 72,4	70 BBB	3003	
33,1 ... 39,0	57,5 ... 62,4	60 999	2457	
22,6 ... 27,5	47,5 ... 52,4	50 777	1911	
14,1 ... 18,0	37,5 ... 42,4	40 555	1365	
7,6 ... 10,5	27,5 ... 32,4	30 333	819	
3,1 ... 5,0	17,5 ... 22,4	20 111	273	
1,6 ... 3,0	12,5 ... 17,4	15 000	0	

Ae250-5

colorness O*	yellow- ness Y*	luminous value Y	cover- age b
15,15,15	0	81 Y _{max}	0,00
15,15,13	2		0,22
15,15,11	4		0,41
15,15, 9	6		0,57
15,15, 7	8		0,71
15,15, 5	10		0,83
15,15, 3	12		0,91
15,15, 1	14		0,98
15,15, 0	15	76 Y _{min}	1,00

Ae250-7

sensation scaling functions

lightness L* and luminous value Y

adaptation on surround white:

$$L^* = 100 (Y / 100)^{1/2,0}$$

adaptation on surround gray:

$$L^* = 100 (Y / 100)^{1/2,4}$$

description with CIELAB 1976:

$$L^* = 116 (Y / 100)^{1/3,0} - 16$$

adaptation on surround black:

$$L^* = 100 (Y / 100)^{1/3,0}$$

Ae250-2

colorness N*	luminous value Y	L* = (L*/10) ^{2/9} Y = (L*/10) ^{2/9} 9
0	90	81 Y _{max}
2	80	64
4	70	49
6	60	36
8	50	25
10	40	16
12	30	9
14	20	4
15	15	2,25 Y _{min}

Ae250-4

colorness O*	black- ness N*	luminous value Y	cover- age b
15,15,15	0	81 Y _{max}	0,00
13,13,13	2	64	0,22
11,11,11	4	49	0,41
9, 9, 9	6	36	0,57
7, 7, 7	8	25	0,71
5, 5, 5	10	16	0,83
3, 3, 3	12	9	0,91
1, 1, 1	14	4	0,98
0, 0, 0	15	2,25 Y _{min}	1,00

Ae250-6

interfaces in area of:
color film original - color scanner -
color storage - raster area coverage

1. color scanner with color measurement sensitivities = spectral values
2. minimum 12-bit color image storage generates cubic screen and quadratic raster area function
3. minimum 8-bit resolution for linear photoelectric sensors

Ae250-8

point amount:

$$n = 16^2 - 15^2 = 31$$



blackness
N* = 1

Ae251-1

point amount:

$$n = 16^2 - 2^2 = 252$$



blackness
N* = E

Ae251-3

print positions by matrix printer



Ae251-5

point amount:

$$n = 16^2 - 8^2 = 192$$



blackness
N* = 8

Ae251-2

point amount:

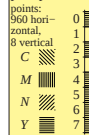
$$n = 16^2 - 1^2 = 255$$



blackness
N* = F

Ae251-4

print positions by matrix printer



Ae251-6

print positions by matrix printer



Ae251-7

colorness O*	black- ness N*	luminous value Y	cover- age b
15,15,15	0	81 Y _{max}	0,00
13,13,13	2	64	0,22
11,11,11	4	49	0,41
9, 9, 9	6	36	0,57
7, 7, 7	8	25	0,71
5, 5, 5	10	16	0,83
3, 3, 3	12	9	0,91
1, 1, 1	14	4	0,98
0, 0, 0	15	2,25 Y _{min}	1,00

Ae251-8

BAM-test chart Ae25; Computer graphics and colorimetry
Colour series from the above book

input: cmy0* setcmkcolor
output: no change compared to input