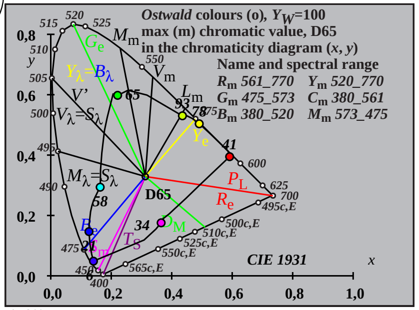
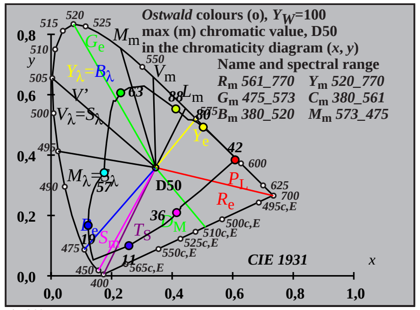
http://farbe.li.tu-berlin.de/AEQ0/AEQ0L0NP.PDF /.PS; only vector graphic VG; start output
N: no 3D-linearization (OL) in file (F) or PS-startup (S)

see similar files: http://farbe.li.tu-berlin.de/AEQ0/AEQ0.HTM
technical information: http://farbe.li.tu-berlin.de or http://130.149.60.45/~farbmetrik



AEQ00−1N



AEQ00−2N

Weber-Fechner law in CIE 230:2019 for threshold colour differences of surface colours

The *Weber-Fechner* law describes the lightness L^*_r as ***logarithmic*** function of L_r.
The *Stevens* law describes the lightness L^*_{CIELAB} as ***potential*** function of $L_r=Y/5$.
IEC 61966-2-1 uses a similar potential function $L^*_{IEC} = m\,L_r^{1/2,4}$.
The *Weber-Fechner* law is equivalent to the equation: $\Delta L_r = c\,L_r$ [1]
Integration leads to the logarithmic equation: L^*_r=k log(L_r). [2]
Derivation leads for ΔL^*_r=1 to the linear equation: $L_r/\Delta L_r$=k=57. [3]
For ***Adjacent*** colours in offices the standard contrast range is **25:1**=90:3,6.

Table 1: CIE tristimulus value *Y*, luminance *L*, and lightnesses *L**

Colour (matte)	Tritimulus value	office luminance	relative luminance	CIE lightness	relative lightness
(contrast) **(25:1=90:3,6)**	***Y***	***L*** **[cd/m²]**	L_r $=L/L_Z$	L^*_{CIELAB} $\sim m\,L_r^{1/2,4}$	L^*_r $=k\log(L_r)$
White W (paper)	90 =18*5	142 =28,2*5	5	94 =50+44	40 =*k*log(5)
Grey Z (paper)	18	28,2	1	50	0 =*k*log(1)
Black N (paper)	3,6 =18/5	5,6 28,2/5	0,2	18 50−32	−40 =*k*log(0,2)

For the lightness range between L^*_r=−40 and 40 the constant is: *k*=40/log(5)=57

AEQ01−1A

Weber-Fechner law in CIE 230:2019 for threshold colour differences of surface colours

The *Weber-Fechner* law describes the lightness L^*_r as ***logarithmic*** function of L_r.
For local adaptation to ***Adjacent*** colours there is a ***visible contrast*** **100:1.**
The *Stevens* law describes the lightness L^*_{CIELAB} as ***potential*** function of $L_r=Y/5$.
IEC 61966-2-1 uses a similar potential function $L^*_{IEC} = m\,L_r^{1/2,4}$.
For ***separate*** colours on a grey surround there is a ***visible contrast*** **25:1**=90:3,6.
see K. Richter, 2006, Relation of *Weber* and *Stevens* law at achromatic threshold.
http://farbe.li.tu-berlin.de/A/BAMAT.PDF

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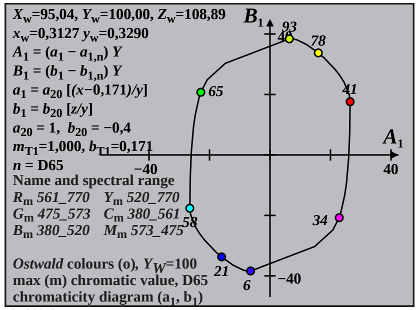
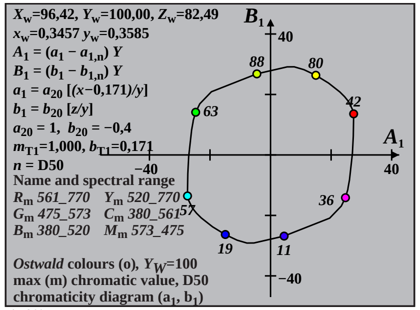
AEQ01−2A



AEQ00−3N



AEQ00−4N

Weber-Fechner law in CIE 230:2019 for threshold colour differences of surface colours

The *Weber-Fechner* law describes the lightness L^*_r as ***logarithmic*** function of L_r.
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AEQ01−3A

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For ***separate*** colours on a grey surround there is a ***visible contrast*** **25:1**=90:3,6.
Surface colours cover the ***visible contrast 100:1.*** Negative film covers the ***contrast 100000:1*** (density 5:1). Film stores images from under to over exposure

Table 1: CIE tristimulus value *Y*, luminance *L*, and lightnesses *L**

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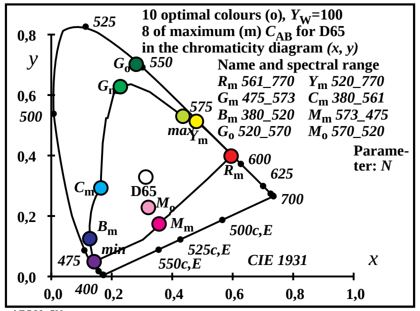
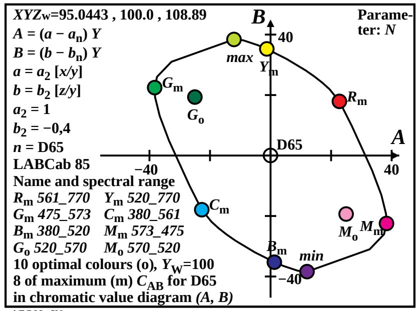
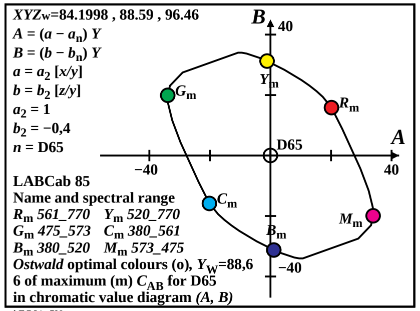
AEQ01−4A



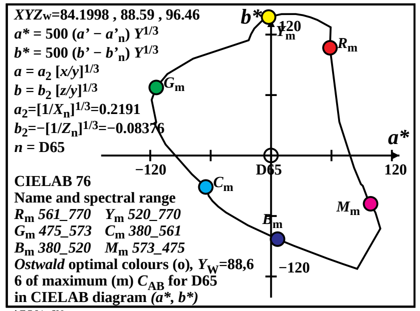
AEQ00−5N



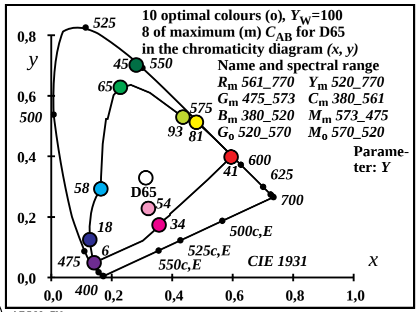
AEQ00−6N



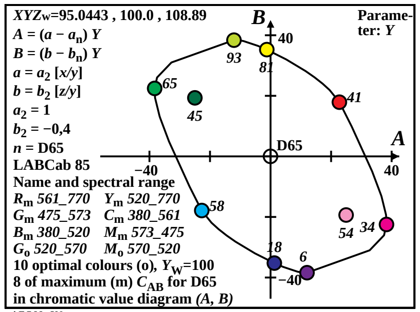
AEQ01−5N 1−000000−L0



AEQ01−6N 1−000000−L0



AEQ00−7N



AEQ00−8N

Code	*X*	*Y*	*Z*	A_1	B_1	C_{AB1}	λ_d	λ_c
D65	95	100	109	0	0	0		
520_775	77	82	1	14	35	38	576	477
380_520	18	18	108	−13	−34	38	477	576
D50	96	100	82	0	0	0		
520_775	83	84	1	13	27	30	577	478
380_520	14	16	81	−12	−26	30	478	577
E00	100	100	100	0	0	0		
520_775	83	84	1	14	33	36	578	476
380_520	17	16	99	−13	−32	36	476	578
P00	102	100	81	0	0	0		
520_775	88	85	1	13	27	30	579	478
380_520	14	15	80	−12	−26	30	478	579

AEQ01−7N

Code	*X*	*Y*	*Z*	A_1	B_1	C_{AB1}	λ_d	λ_c
D65	95	100	109	0	0	0		
475_575	20	61	20	−22	19	30	524	524c
575_475	75	39	89	23	−18	30	524c	524
D50	96	100	82	0	0	0		
475_575	20	58	17	−24	12	28	522	522c
575_475	77	42	65	25	−11	28	522c	522
E00	100	100	100	0	0	0		
475_575	19	58	18	−24	16	30	523	523c
575_475	81	42	82	25	−15	30	523c	523
P00	102	100	81	0	0	0		
475_575	19	55	16	−25	12	29	522	522c
575_475	83	45	66	26	−11	29	522c	522

AEQ01−8N

TUB-test chart AEQ0; Continuous hue circle of *Ostwald* chromaticity diagrams *(x,y)*, and chromatic value diagrams *(A, B)*

input: *rgb/cmy0/000k/n*

TUB registration: 20201101-AEQ0/AEQ0L0NP.PDF /.PS
application for evaluation and measurement of display or print output
TUB material: code=rha4ta