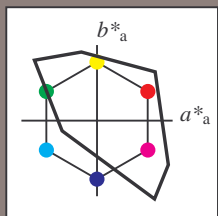


Input: Colorimetric Television Luminous System TLS00a

with *rgb* data of the four elementary hues

- 1 0 0 = Red *R*
- 1 1 0 = Yellow *J*
- 0 1 0 = Green *G*
- 0 0 1 = Blue *B*



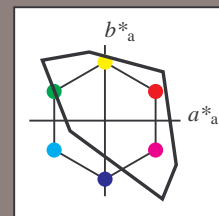
TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.92	64.55	100.42	40
Y _{Ma}	92.66	-20.69	90.75	93.08	103
L _{Ma}	83.63	-82.75	79.9	115.04	136
C _{Ma}	86.88	-46.16	-13.55	48.12	196
V _{Ma}	30.39	76.06	-103.59	128.52	306
M _{Ma}	57.3	94.35	-58.41	110.97	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272

Output: Colorimetric Television Luminous System TLS00a

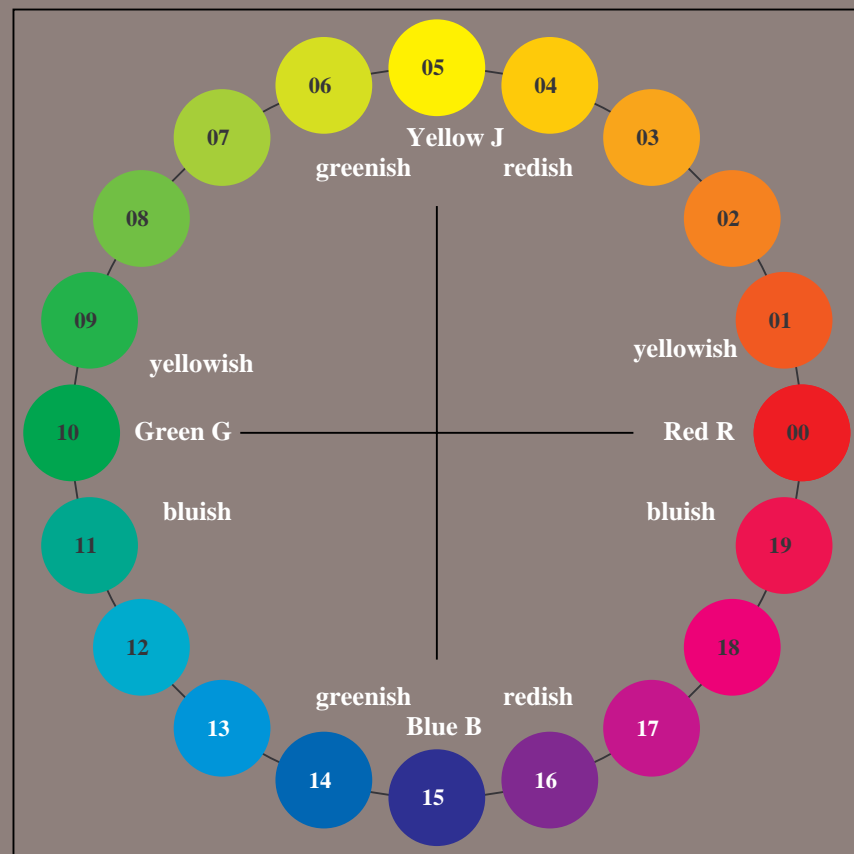
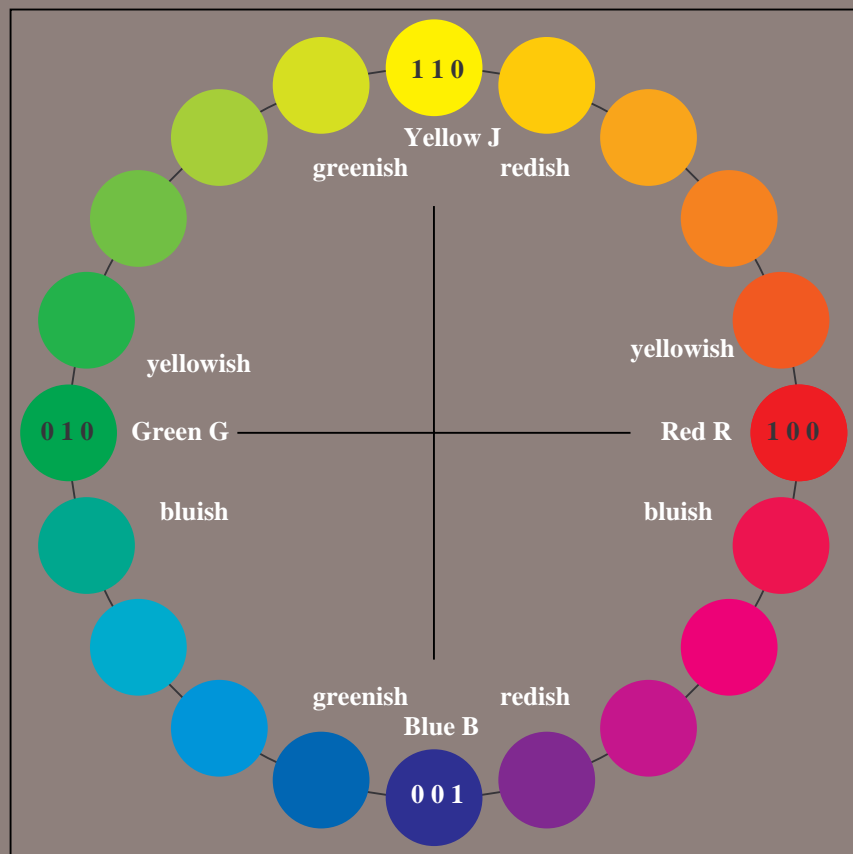
with hue number

- n* = 00 to 19
- 00 = Red *R*
- 05 = Yellow *J*
- 10 = Green *G*
- 15 = Blue *B*



TLS00a; adapted (a) CIELAB data

	$L^*=L^*_a$	a^*_a	b^*_a	$C^*_{ab,a}$	$h^*_{ab,a}$
O _{Ma}	50.5	76.92	64.55	100.42	40
Y _{Ma}	92.66	-20.69	90.75	93.08	103
L _{Ma}	83.63	-82.75	79.9	115.04	136
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M _{Ma}	57.3	94.35	-58.41	110.97	328
N _{Ma}	0.01	0.0	0.0	0.0	0
W _{Ma}	95.41	0.0	0.0	0.0	0
R _{CIE}	39.92	58.74	27.99	65.07	25
J _{CIE}	81.26	-2.88	71.56	71.62	92
G _{CIE}	52.23	-42.41	13.6	44.55	162
B _{CIE}	30.57	1.41	-46.46	46.49	272



OE870-7N-020-0: 20 step hue circle with elementary colours *R, J, G, B* (left)

20 step hue circle with elementary colours *R, J, G, B* (right)

OE87: Test chart 2 according to DIN 33872-5; DH
 Elementary hue agreement and discrimination

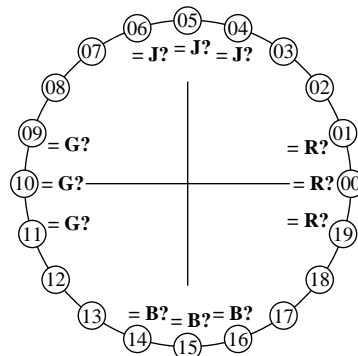
input: *cmY0* (->*cmY0**_D) *setcmYk*
 output 020-0: no change

See similar ISO test charts: <http://www.ps.bam.de/24705TE>; <http://www.ps.bam.de/9241E>
 Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1

TUB registration: 20110801-OE87/OE87L0NA.TXT /.PS
 application for output of displays: monitor systems or data projector systems
 TUB material: code=rh4ta

Agreement with elementary hues (Yes/No decision)

Layout example: agreement with elementary hues



There are four elementary hues on each page: Red R, Yellow J (=french Jaune), Green G, and Blue B.

Input data 1 0 0 should produce Red R.
Input data 0 1 0 should produce Green G.
Input data 0 0 1 should produce Blue B.
Input data 1 1 0 should produce Yellow J.

The elementary hues Red R and Green G should locate on the horizontal axis.
The elementary hues Yellow J and Blue B should locate on the vertical axis.

This test uses a hue circle with 20 hues.

No. 00 and 10 should be Red R and Green G.
No. 05 and 15 should be Yellow J and Blue B.

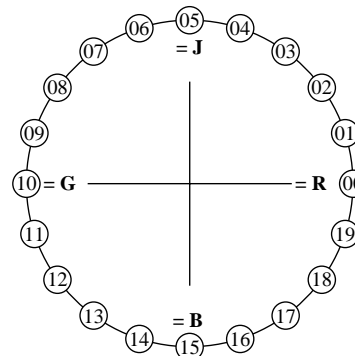
Are no. 00, 05, 10, and 15 the four elementary hues R, J, G and B? underline: Yes/No
Only in case of "No":

- Elementary Red R is hue step no. (e. g. 00, 01, 19) (neither yellowish nor blueish)
 - Elementary Yellow J is hue step no. (e. g. 05, 04, 06) (neither reddish nor greenish)
 - Elementary Green G is hue step no. (e. g. 10, 09, 11) (neither yellowish nor blueish)
 - Elementary Blue B is hue step no. (e. g. 15, 14, 16) (neither reddish nor greenish)
- Result: Of the 4 elementary hues (e.g. three) are at the intended location

Part 1 OE870-3N-020-1

Discriminability of colours with 20 hues (Yes/No decision)

Layout example: discriminability of colours with 20 hues



There are four elementary hues on each page: Red R, Yellow J (=french Jaune), Green G, and Blue B.

Input data 1 0 0 should produce Red R.
Input data 0 1 0 should produce Green G.
Input data 0 0 1 should produce Blue B.
Input data 1 1 0 should produce Yellow J.

Four hue steps are between: Red R and Yellow J, Yellow J and Green G, Green G and Blue B, and Blue B and Red R.

This test uses a hue circle with 20 hues.
All 20 hues should be distinguishable.

For this test it is **not** necessary:

1. All 19 differences are visually equal.
2. Elementary hues locate at 00, 05, 10, and 15.

Are all 20 colours of the 20 hues distinguishable? underline: Yes/No
Only in case of "No":

- The colours of the two hue steps no. (e. g. 00 and 01) are not distinguishable
 - The colours of the two hue steps no. (e. g. 14 and 15) are not distinguishable
 - The colours of the two hue steps no. (e. g. 15 and 16) are not distinguishable
- List other pairs:
- Result: Of the 19 hue differences are (e.g. 18) differences visible

Part 2 OE871-3N-020-1

Documentation of file format, hardware and software for this test:

PDF-File: <http://130.149.60.45/farbmetrik/OE87/OE87L0NP.PDF> underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE87/OE87L0NA.PS> or underline Yes/No

Used computer operating system:

either one of Windows/Mac/Unix/other and version:.....

This evaluation is for the device output: underline monitor/data projector/printer

Device model, driver and version:.....

Device output with PDF/PS-file: underline PDF/PS-file

For device output with PDF-file OE87L0NP.PDF:

- either PDF-file transfer "download, copy" to PDF device.....
- or with computer system interpretation by "Display-PDF".....
- or with software. e. g. Adobe-Reader/-Acrobat and version:.....
- or with software e. g. Ghostscript and version:.....

For device output with PS-file OE87L0NA.PS:

- either PS-file transfer "download, copy" to PS device.....
- or with computer system interpretation by "Display-PS".....
- or with software e. g. Ghostscript and version:.....
- or with software e. g. Mac-Yap and version:.....

Special remarks:Special remarks, e. g. output of Landscape (L)

Part 3 OE870-7N-020-1

Documentation of assessor colour vision properties for visual assessment

The assessor has **normal** colour vision according to one test:
either according to DIN 6160:1996 with Anomaloskop of Nagel
or with test charts using colour points according to Ishihara
or tested with, please specify:

underline Yes/No
underline Yes/unknown
underline Yes/unknown
underline Yes/unknown

For visual evaluation of the display (monitor, data projector) output

Office workplace illumination is daylight (clouded/north sky) underline Yes/No

PDF file: <http://130.149.60.45/farbmetrik/OE87/OE87F1P2.PDF> underline Yes/No

PS file: <http://130.149.60.45/farbmetrik/OE87/OE87F1P2.PS> underline Yes/No

Picture A7-020-2: **contrast range:** (>F:0) (F:0) (E:0) (D:0) (C:0) (A:0) (9:0) (7:0) (5:0) (3:0) (<3:0)
compare standard print output according to ISO/IEC 15775 with range F:0 underline range

Remark: In daylighted offices the contrast range is in many cases:
on display between: >F:0 and E:0 (monitor), D:0 and 3:0 (data projector)

Only for optional colorimetric specification with PDF/PS file output

PDF-File: <http://130.149.60.45/farbmetrik/OE87/OE87F1P2.PDF>

picture A7-020-2 underline Yes/No

PS-File: <http://130.149.60.45/farbmetrik/OE87/OE87F1P2.PS>

picture A7-020-2 or underline Yes/No

colour measurement and specification for:

CIE standard illuminant D65, 2 degree observer, CIE 45/0 geometry: underline Yes/No
If No, please give other parameters:

Colorimetric specification with PS file for colours in the columns A to T

Exchange of CIELAB data in file www.ps.bam.de/De17/10L/L17e00NP.PS and transfer
of the PS-file L17e00NP.PS in PDF-file L17e00NP.PDF underline Yes/No
If No, please describe other method:

Part 4 OE871-7N-020-1

See similar ISO test charts: <http://www.ps.bam.de/24705TE>, <http://www.ps.bam.de/9241E>
Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1

TUB registration: 20110801-OE87/OE87L0NA.TXT /PS
application for output of displays: monitor systems or data projector systems
TUB material: code=rha4ta

See similar ISO test charts: <http://www.ps.bam.de/24705TE>; <http://www.ps.bam.de/9241E>
 Technical information: <http://www.ps.bam.de/33872E> Version 2.1, io=1,1

i	LAB*ref	l*out	LAB*out	LAB*out/c-ref	ΔE^*
1	0.0	0.0	0.0	0.0	0.01
2	6.36	0.0	0.07	6.36	0.01
3	12.72	0.0	0.13	12.72	0.01
4	19.08	0.0	0.2	19.08	0.01
5	25.44	0.0	0.27	25.44	0.01
6	31.8	0.0	0.33	31.8	0.01
7	38.16	0.0	0.4	38.16	0.01
8	44.52	0.0	0.47	44.52	0.01
9	50.89	0.0	0.53	50.89	0.01
10	57.25	0.0	0.6	57.25	0.01
11	63.61	0.0	0.67	63.61	0.01
12	69.97	0.0	0.73	69.97	0.01
13	76.33	0.0	0.8	76.33	0.01
14	82.69	0.0	0.87	82.69	0.01
15	89.05	0.0	0.93	89.05	0.01
16	95.41	0.0	1.0	95.41	0.01
17	0.0	0.0	0.0	0.0	0.01
18	23.85	0.0	0.25	23.85	0.01
19	47.71	0.0	0.5	47.71	0.01
20	71.56	0.0	0.75	71.56	0.01
21	95.41	0.0	1.0	95.41	0.01

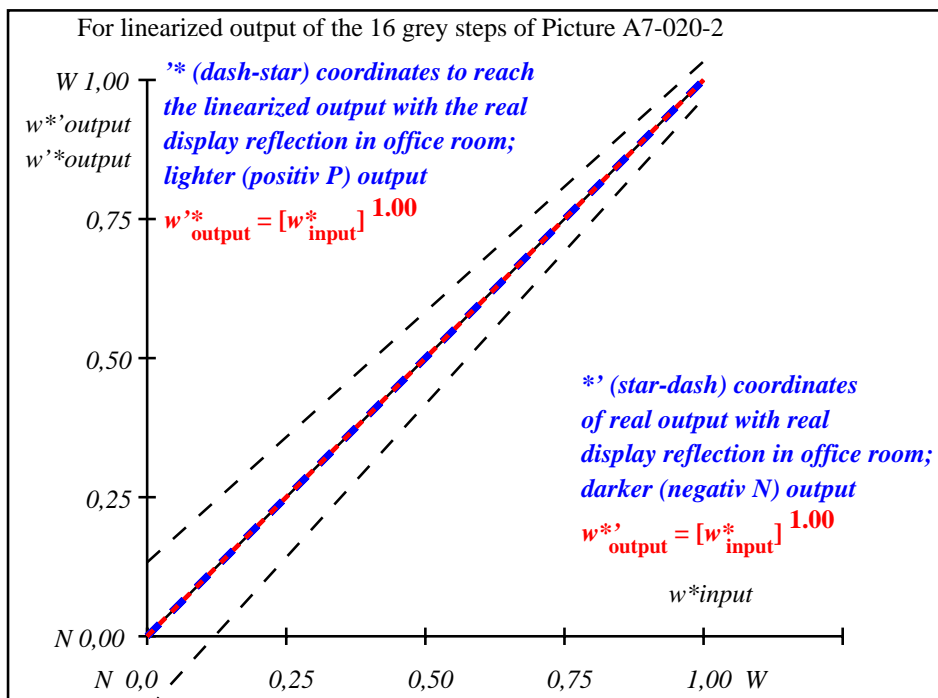
Start output S1
Specification according to ISO/IEC 15775 Annex G and DIN 33866-1 Annex G

Mean lightness difference (16 steps)
 $\Delta E^*_{CIELAB} = 0.0$

Mean lightness difference (5 steps)
 $\Delta L^*_{CIELAB} = 0.0$

Mean colour reproduction index: $R^*_{ab,m} = 100$

OE870-3N-020-2: File: Measure unknown; Device: Device unknown; Date: Date unknown



OE871-3N-020-2: File: Measure unknown; Device: Device unknown; Date: Date unknown

$L^*/Y_{intended}$ (absolute)	0.0/0.0	6.4/0.7	12.7/1.5	19.1/2.8	25.4/4.6	31.8/7.0	38.2/10.2	44.5/14.2	50.9/19.2	57.2/25.2	63.6/32.3	70.0/40.7	76.3/50.4	82.7/61.6	89.0/74.3	95.4/88.6
$n^* n^* n^* 0$ setcmyk gp=1.00 No. and Hex code	00;F	01;E	02;D	03;C	04;B	05;A	06;9	07;8	08;7	09;6	10;5	11;4	12;3	13;2	14;1	15;0
$w^*=I^*_{CIELAB, r}$ (relative)	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
$w^*_{intended}$	0,000	0,067	0,133	0,200	0,267	0,333	0,400	0,467	0,533	0,600	0,667	0,733	0,800	0,867	0,933	1,000
w^*_{out}	0,0	0,067	0,133	0,2	0,267	0,333	0,4	0,467	0,533	0,6	0,667	0,733	0,8	0,867	0,933	1,0

OE870-7N, Picture A7-020-2: 16 visual equidistant L^* -grey steps; PS operator: $n^* n^* n^* 0$ setcmykcolor

OE87: In-output relation according to ISO 9241-306; DH
 Viewing Y contrast $Y_W:Y_N=88,9:0,31$; Y_N range 0,0 to <0,46

input: cmy0 (->cmy0*_d) setcmyk
 output 020-2: no change

TUB registration: 20110801-OE87/OE87L0NA.TXT /.PS
 application for output of displays: monitor systems or data projector systems
 TUB material: code=rh4ta