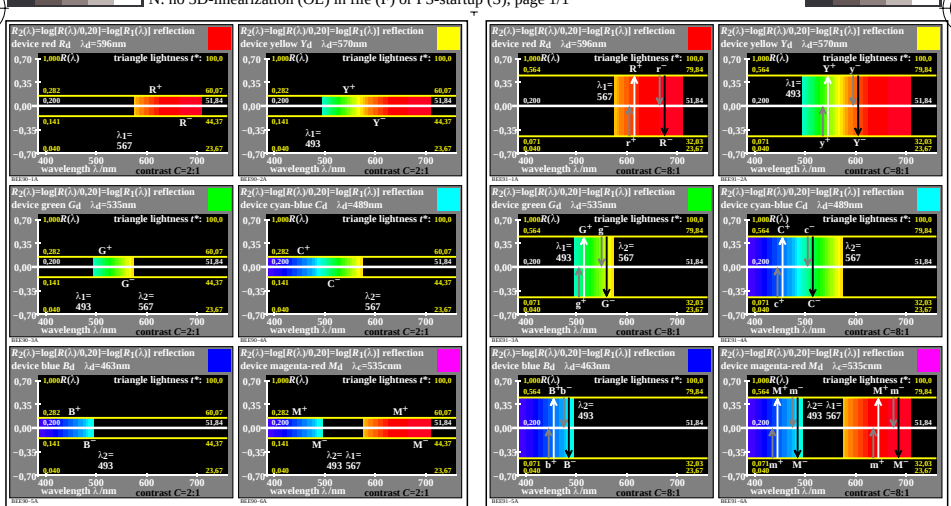
http://farbe.li.tu-berlin.de/BEE9/BEE9L0N1.TXT /.PS; only vector graphic VG; start output
N: no 3D-linearization (OL) in file (F) or PS-startup (S), page 1/1

see similar files: http://farbe.li.tu-berlin.de/BEE9/BEE9.HTM
technical information: http://farbe.li.tu-berlin.de or http://color.li.tu-berlin.de

TUB registration: 20201101-BEE9/BEE9L0N1.TXT /.PS
application for evaluation and measurement of display or print output

TUB material: code=rha4ta



Reflection, log[reflection], and triangle lightness t^*

CIELAB lightness L^* is equal to triangle lightness t^* for grey colours. For surface colours all reflections are normalized to mean grey.

The normalized reflections of white, grey and black are:

$$R_{1W}(\lambda) = 5,\ R_{1Z}(\lambda) = 1,\ R_{1N}(\lambda) = 1/5. \quad [1]$$

It is valid: $\log[R_{1W}(\lambda)] = 0{,}70$; $\log[R_{1N}(\lambda)] = -0{,}70$

therefore: $\log[R_{1N}(\lambda)] + \log[R_{1W}(\lambda)] = 0 = \log[R_{1Z}(\lambda)]$. [2]

For all reflections with $R_1(\lambda) = R(\lambda)/0{,}20$ it is valid:

$$R_N(\lambda) = 0{,}04,\ R_Z(\lambda) = 0{,}20,\ R_W(\lambda) = 1{,}00. \quad [3]$$

For the figure case it is: $R_N(\lambda) = 0{,}141$; $R_W(\lambda) = 0{,}282$.

In this case is the **scene contrast: C = 0,282:0,141 = 2:1**.

Both CIELAB and triangle lightness are proportional to $\log[R_1(\lambda)]$ for $R_1(\lambda)$ near 1,00 or $R(\lambda)$ near 0,20, for example for the contrast 2:1.

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For the figure case it is: $R_N(\lambda) = 0{,}071$; $R_W(\lambda) = 0{,}564$.

In this case is the **scene contrast: C = 0,564:0,071 = 8:1**.

Both CIELAB and triangle lightness are proportional to $\log[R_1(\lambda)]$ for $R_1(\lambda)$ near 1,00 or $R(\lambda)$ near 0,20, for example for the contrast 2:1.

TUB-test chart BEE9; Wavelength ranges of 6 *Ostwald* colours + W, C=2:1 and 8:1 input: *rgb/n*
Normalized reflection log[$R(\lambda)$/0,2] and model relation to lightness of the antagonistic signals