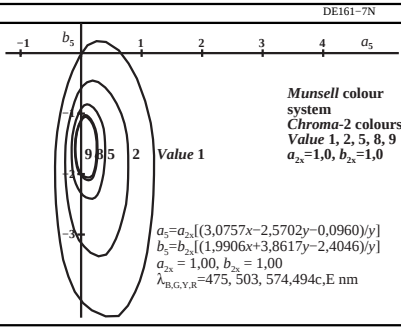
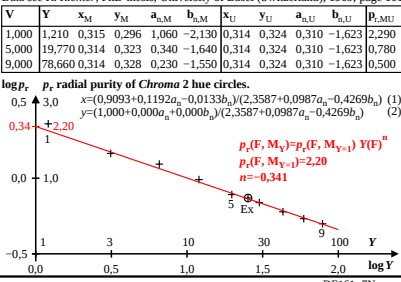


elementary colour	dominant wavelength	Judd spectral tristimulus values			chromatic values	
		$\bar{x}(\lambda)$	$\bar{y}(\lambda)$	$\bar{z}(\lambda)$	RG $\bar{x}_g(\lambda)$	YB $\bar{x}_b(\lambda)$
blue	$\lambda_B=475$ nm	0,8267	0,9339	0,0017	0,0000	-
green	$\lambda_G=502$ nm	0,0107	0,0038	0,0005	-1,0000	0,0000
yellow	$\lambda_Y=574$ nm	0,1304	0,1124	0,9281	0,0000	1,0000
red	$\lambda_R=494c,E$ nm	0,0028	0,3701	0,2238	-	0,0000

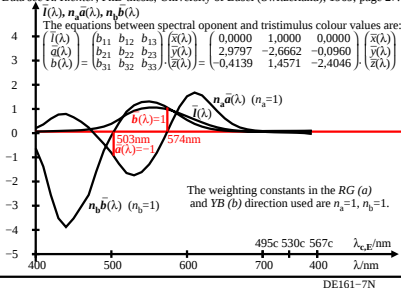
There are six equations to calculate the six constants: b_{21} to b_{33}
 $\bar{x}_g(\lambda_B)=b_{21}\bar{x}(\lambda_B)+b_{22}\bar{y}(\lambda_B)+b_{23}\bar{z}(\lambda_B)=0$ $\bar{x}_g(\lambda_G)=b_{31}\bar{x}(\lambda_G)+b_{32}\bar{y}(\lambda_G)+b_{33}\bar{z}(\lambda_G)=0$
 $\bar{x}_b(\lambda_G)=b_{21}\bar{x}(\lambda_G)+b_{22}\bar{y}(\lambda_G)+b_{23}\bar{z}(\lambda_G)=-1$ $\bar{x}_b(\lambda_Y)=b_{31}\bar{x}(\lambda_Y)+b_{32}\bar{y}(\lambda_Y)+b_{33}\bar{z}(\lambda_Y)=1$
 $\bar{x}_g(\lambda_Y)=b_{21}\bar{x}(\lambda_Y)+b_{22}\bar{y}(\lambda_Y)+b_{23}\bar{z}(\lambda_Y)=0$ $\bar{x}_g(\lambda_R)=b_{31}\bar{x}(\lambda_R)+b_{32}\bar{y}(\lambda_R)+b_{33}\bar{z}(\lambda_R)=0$
Together with the use of the standard equation: $\bar{x}_g(\lambda)=\bar{y}(\lambda)$ (1)
the equations between spectral opponent and tristimulus colour values are:
 $\begin{pmatrix} \bar{x}_g(\lambda) \\ \bar{x}_b(\lambda) \end{pmatrix} = \begin{pmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \end{pmatrix} \cdot \begin{pmatrix} \bar{x}(\lambda) \\ \bar{y}(\lambda) \\ \bar{z}(\lambda) \end{pmatrix} = \begin{pmatrix} 0,0000 & 1,0000 & 0,0000 \\ 2,9797 & -2,6662 & -0,0960 \end{pmatrix} \cdot \begin{pmatrix} \bar{x}(\lambda) \\ \bar{y}(\lambda) \\ \bar{z}(\lambda) \end{pmatrix}$ (2)
Remark: The weighting ratio in the RG and YB direction is 2,81 or 1,0,3571.



DE161-7N



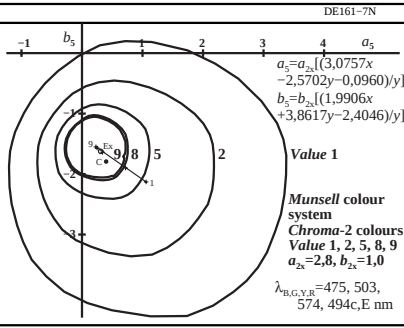
DE161-7N



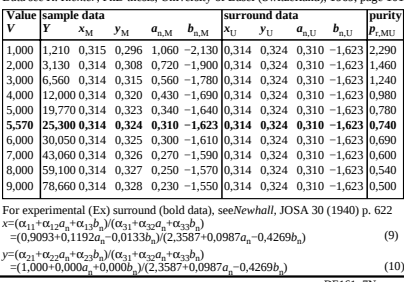
DE161-7N

elementary colour	dominant wavelength	Judd spectral tristimulus values			chromatic values	
		$\bar{x}(\lambda)$	$\bar{y}(\lambda)$	$\bar{z}(\lambda)$	RG $\bar{a}(\lambda)$	YB $\bar{b}(\lambda)$
blue	$\lambda_B=475$ nm	0,8267	0,9339	0,0017	0,0000	-
green	$\lambda_G=502$ nm	0,0107	0,0038	0,0005	-1,0000	0,0000
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red	$\lambda_R=494c,E$ nm	0,0028	0,3701	0,2238	-	0,0000

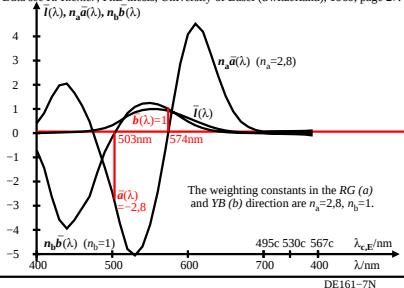
There are six equations to calculate the six constants: b_{21} to b_{33}
 $\bar{a}(\lambda_B)=b_{21}\bar{x}(\lambda_B)+b_{22}\bar{y}(\lambda_B)+b_{23}\bar{z}(\lambda_B)=0$ $\bar{b}(\lambda_G)=b_{31}\bar{x}(\lambda_G)+b_{32}\bar{y}(\lambda_G)+b_{33}\bar{z}(\lambda_G)=0$
 $\bar{a}(\lambda_G)=b_{21}\bar{x}(\lambda_G)+b_{22}\bar{y}(\lambda_G)+b_{23}\bar{z}(\lambda_G)=-1$ $\bar{b}(\lambda_Y)=b_{31}\bar{x}(\lambda_Y)+b_{32}\bar{y}(\lambda_Y)+b_{33}\bar{z}(\lambda_Y)=1$
 $\bar{a}(\lambda_Y)=b_{21}\bar{x}(\lambda_Y)+b_{22}\bar{y}(\lambda_Y)+b_{23}\bar{z}(\lambda_Y)=0$ $\bar{b}(\lambda_R)=b_{31}\bar{x}(\lambda_R)+b_{32}\bar{y}(\lambda_R)+b_{33}\bar{z}(\lambda_R)=0$
Together with the use of the standard equation: $\bar{l}(\lambda)=\bar{y}(\lambda)$ (1)
the equations between spectral opponent and tristimulus colour values are:
 $\begin{pmatrix} \bar{l}(\lambda) \\ \bar{a}(\lambda) \end{pmatrix} = \begin{pmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \end{pmatrix} \cdot \begin{pmatrix} \bar{x}(\lambda) \\ \bar{y}(\lambda) \\ \bar{z}(\lambda) \end{pmatrix} = \begin{pmatrix} 0,0000 & 1,0000 & 0,0000 \\ 2,9797 & -2,6662 & -0,0960 \end{pmatrix} \cdot \begin{pmatrix} \bar{x}(\lambda) \\ \bar{y}(\lambda) \\ \bar{z}(\lambda) \end{pmatrix}$ (2)
Remark: The weighting ratio in the RG and YB direction is 2,81 or 1,0,3571.



DE161-7N



DE161-7N



DE161-7N