## Colour stimuli of just noticable colour thresholds, *see Richter (1985)*

| Colour series number | Colour stimuli colour values Y | x | y | Colour stimuli differences −WN at threshold measured and calculated data ΔY | $F_Y$ | $F_Y-\Delta Y$ | $\Delta Y/F_Y$ | $1-\Delta Y/F_Y$ | notes Δv |
|---|---|---|---|---|---|---|---|---|---|
| WPN_01 | 197.5 | 0.3987 | 0.4175 | 1.16 | 1.1264 | −0.0335 | 1.0298 | −0.0298 | |
| WPN_02 | 74.3 | 0.3919 | 0.414 | 0.41 | 0.4367 | 0.0267 | 0.9388 | 0.0611 | |
| WPN_03 | 34.4 | 0.3926 | 0.414 | 0.18 | 0.213 | 0.033 | 0.8449 | 0.155 | |
| WPN_04 | 17.7 | 0.3973 | 0.4153 | 0.1 | 0.1197 | 0.0197 | 0.8351 | 0.1648 | P40 |
| WPN_05 | 9.1 | 0.4052 | 0.4185 | 0.08 | 0.0718 | −0.0081 | 1.1132 | −0.1132 | ± 0.147 |
| WPN_06 | 4.6 | 0.4158 | 0.4226 | 0.05 | 0.0466 | −0.0033 | 1.0727 | −0.0727 | |
| WPN_07 | 3.1 | 0.3861 | 0.4114 | 0.05 | 0.0381 | −0.0118 | 1.3105 | −0.3105 | |
| WPN_08 | 1.2 | 0.3831 | 0.409 | 0.03 | 0.0275 | −0.0024 | 1.0882 | −0.0882 | |
| WPN_09 | 0.6 | 0.3859 | 0.4107 | 0.02 | 0.0239 | 0.0039 | 0.8358 | 0.1641 | |
| WPN_10 | 0.3 | 0.3907 | 0.4143 | 0.02 | 0.022 | 0.002 | 0.9057 | 0.0942 | |
| WPN_11 | 0.1 | 0.4019 | 0.4167 | 0.02 | 0.0213 | 0.0013 | 0.9366 | 0.0633 | |

***Y*** CIE tristimulues value
Δ***Y*** CIE tristimulues value difference threshold
$\mathbf{A_1 = 0.0204}$ and $\mathbf{A_2 = 0.0056}$ opimized by least square technique
$F_Y = A_1 + A_2 \cdot Y = A_1 [\, 1 + A_2/A_1 \cdot Y \,]$ Approximation of Δ***Y***
$\Delta Y/F_Y = 1$ intended value
Δ***v*** standard deviation
$\Delta v = \{\Sigma[1-\Delta Y/F_Y]^2/(n-1)\}^{1/2} = 0.147$

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## Colour stimuli of just noticable colour thresholds, *see Richter (1985)*

| Colour series number | Colour stimuli colour values Y | x | y | Colour stimuli differences −WN at threshold measured and calculated data ΔY | $F_Y$ | $F_Y-\Delta Y$ | $\Delta Y/F_Y$ | $1-\Delta Y/F_Y$ | notes Δv |
|---|---|---|---|---|---|---|---|---|---|
| WPN_01 | 197.5 | 0.3987 | 0.4175 | 1.16 | 1.1264 | −0.0335 | 1.0298 | −0.0298 | |
| WPN_02 | 74.3 | 0.3919 | 0.414 | 0.41 | 0.4367 | 0.0267 | 0.9388 | 0.0611 | |
| WPN_03 | 34.4 | 0.3926 | 0.414 | 0.18 | 0.213 | 0.033 | 0.8449 | 0.155 | |
| WPN_04 | 17.7 | 0.3973 | 0.4153 | 0.1 | 0.1197 | 0.0197 | 0.8351 | 0.1648 | P40 |
| WPN_05 | 9.1 | 0.4052 | 0.4185 | 0.08 | 0.0718 | −0.0081 | 1.1132 | −0.1132 | ± 0.147 |
| WPN_06 | 4.6 | 0.4158 | 0.4226 | 0.05 | 0.0466 | −0.0033 | 1.0727 | −0.0727 | |
| WPN_07 | 3.1 | 0.3861 | 0.4114 | 0.05 | 0.0381 | −0.0118 | 1.3105 | −0.3105 | |
| WPN_08 | 1.2 | 0.3831 | 0.409 | 0.03 | 0.0275 | −0.0024 | 1.0882 | −0.0882 | |
| WPN_09 | 0.6 | 0.3859 | 0.4107 | 0.02 | 0.0239 | 0.0039 | 0.8358 | 0.1641 | |
| WPN_10 | 0.3 | 0.3907 | 0.4143 | 0.02 | 0.022 | 0.002 | 0.9057 | 0.0942 | |
| WPN_11 | 0.1 | 0.4019 | 0.4167 | 0.02 | 0.0213 | 0.0013 | 0.9366 | 0.0633 | |

***Y*** CIE tristimulues value
Δ***Y*** CIE tristimulues value difference threshold
$\mathbf{A_1 = 0.0204}$ and $\mathbf{A_2 = 0.0056}$ opimized by least square technique
$F_Y = A_1 + A_2 \cdot Y = A_1 [\, 1 + A_2/A_1 \cdot Y \,]$ Approximation of Δ***Y***
$\Delta Y/F_Y = 1$ intended value
Δ***v*** standard deviation
$\Delta v = \{\Sigma[1-\Delta Y/F_Y]^2/(n-1)\}^{1/2} = 0.147$

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## Colour stimuli of just noticable colour thresholds, *see Richter (1985)*

| Colour series number | Colour stimuli colour values Y | $Y_0$ | $Y_1$ | Colour stimuli differences −WN at threshold measured and calculated response data T* ΔY | $T^*_{Y0}$ | $T^*_{Y1}$ | $\Delta T^*_Y$ | $\Delta Y/F_Y$ | notes Δv |
|---|---|---|---|---|---|---|---|---|---|
| WPN_01 | 197.5 | 198.08 | 196.92 | 1.16 | 716.808 | 715.779 | 1.0297 | 1.0298 | |
| WPN_02 | 74.3 | 74.54 | 74.13 | 0.41 | 547.562 | 546.623 | 0.9388 | 0.9388 | |
| WPN_03 | 34.4 | 34.49 | 34.31 | 0.18 | 419.341 | 418.496 | 0.8449 | 0.8449 | |
| WPN_04 | 17.7 | 17.78 | 17.69 | 0.1 | 316.456 | 315.621 | 0.8351 | 0.8351 | P40 |
| WPN_05 | 9.1 | 9.22 | 9.14 | 0.08 | 225.42 | 224.307 | 1.1132 | 1.1132 | ± 0.147 |
| WPN_06 | 4.6 | 4.7 | 4.65 | 0.05 | 148.078 | 147.005 | 1.0727 | 1.0727 | |
| WPN_07 | 3.1 | 3.19 | 3.14 | 0.05 | 112.447 | 111.137 | 1.3105 | 1.3105 | |
| WPN_08 | 1.2 | 1.29 | 1.26 | 0.03 | 54.3148 | 53.2266 | 1.0882 | 1.0882 | |
| WPN_09 | 0.6 | 0.64 | 0.62 | 0.02 | 28.9021 | 28.0663 | 0.8358 | 0.8358 | |
| WPN_10 | 0.3 | 0.31 | 0.29 | 0.02 | 14.5839 | 13.6781 | 0.9057 | 0.9057 | |
| WPN_11 | 0.1 | 0.18 | 0.16 | 0.02 | 8.6124 | 7.6757 | 0.9366 | 0.9366 | |

***Y*** CIE tristimulues value, Δ***Y*** CIE tristimulues value difference threshold
$Y_0 = Y + 0.5 \cdot \Delta Y$, $Y_1 = Y - 0.5 \cdot \Delta Y$
$\mathbf{A_1 = 0.0204}$ and $\mathbf{A_2 = 0.0056}$ opimized by least square technique
$F_Y = A_1 + A_2 \cdot Y = A_1 [\, 1 + A_2/A_1 \cdot Y \,]$ approximation of Δ***Y***
$\Delta Y/F_Y = 1$ intended value
$T^*_Y = 1/A_2 \cdot ln\,(1 + A_2/A_1 \cdot Y)$ Δ***v*** standard deviation
$\Delta T^* = T^*_{Y0} - T^*_{Y1} = 1$ intended value $\Delta v = \{\Sigma[1-\Delta T^*_Y]^2/(n-1)\} = 0.147$
$\delta T^*/\delta Y = 1/[A_1 \cdot (1 + A_2/A_1 \cdot Y)$ or $\delta Y = A_1 [\, 1 + A_2/A_1 \cdot Y \,]$ for $\delta T^*=1$

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## Colour stimuli of just noticable colour thresholds, *see Richter (1985)*

| Colour series number | Colour stimuli colour values Y | $Y_0$ | $Y_1$ | Colour stimuli differences −WN at threshold measured and calculated response data T* ΔY | $T^*_{Y0}$ | $T^*_{Y1}$ | $\Delta T^*_Y$ | $\Delta Y/F_Y$ | notes Δv |
|---|---|---|---|---|---|---|---|---|---|
| WPN_01 | 197.5 | 198.08 | 196.92 | 1.16 | 716.808 | 715.779 | 1.0297 | 1.0298 | |
| WPN_02 | 74.3 | 74.54 | 74.13 | 0.41 | 547.562 | 546.623 | 0.9388 | 0.9388 | |
| WPN_03 | 34.4 | 34.49 | 34.31 | 0.18 | 419.341 | 418.496 | 0.8449 | 0.8449 | |
| WPN_04 | 17.7 | 17.78 | 17.69 | 0.1 | 316.456 | 315.621 | 0.8351 | 0.8351 | P40 |
| WPN_05 | 9.1 | 9.22 | 9.14 | 0.08 | 225.42 | 224.307 | 1.1132 | 1.1132 | ± 0.147 |
| WPN_06 | 4.6 | 4.7 | 4.65 | 0.05 | 148.078 | 147.005 | 1.0727 | 1.0727 | |
| WPN_07 | 3.1 | 3.19 | 3.14 | 0.05 | 112.447 | 111.137 | 1.3105 | 1.3105 | |
| WPN_08 | 1.2 | 1.29 | 1.26 | 0.03 | 54.3148 | 53.2266 | 1.0882 | 1.0882 | |
| WPN_09 | 0.6 | 0.64 | 0.62 | 0.02 | 28.9021 | 28.0663 | 0.8358 | 0.8358 | |
| WPN_10 | 0.3 | 0.31 | 0.29 | 0.02 | 14.5839 | 13.6781 | 0.9057 | 0.9057 | |
| WPN_11 | 0.1 | 0.18 | 0.16 | 0.02 | 8.6124 | 7.6757 | 0.9366 | 0.9366 | |

***Y*** CIE tristimulues value, Δ***Y*** CIE tristimulues value difference threshold
$Y_0 = Y + 0.5 \cdot \Delta Y$, $Y_1 = Y - 0.5 \cdot \Delta Y$
$\mathbf{A_1 = 0.0204}$ and $\mathbf{A_2 = 0.0056}$ opimized by least square technique
$F_Y = A_1 + A_2 \cdot Y = A_1 [\, 1 + A_2/A_1 \cdot Y \,]$ approximation of Δ***Y***
$\Delta Y/F_Y = 1$ intended value
$T^*_Y = 1/(A_2 \cdot ln(10)) \cdot log_{10}(1 + A_2/A_1 \cdot Y)$ Δ***v*** standard deviation
$\Delta T^* = T^*_{Y0} - T^*_{Y1} = 1$ intended value $\Delta v = \{\Sigma[1-\Delta T^*_Y]^2/(n-1)\} = 0.147$
$\delta T^*/\delta Y = 1/[A_1 \cdot (1 + A_2/A_1 \cdot Y)$ or $\delta Y = A_1 [\, 1 + A_2/A_1 \cdot Y \,]$ for $\delta T^*=1$

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