

Colour stimuli of just noticeable colour thresholds (p=50%) in GR direction												
number Colour series	CIELAB differences lightness, chroma, Σ			LABJND differences lightness, chroma, Σ			colour differences other formulae			notes experimental series		
	ΔL^*	Δa^*	Δb^*	ΔL^*	Δa^*	Δb^*	CMC/C94	C00				
0 WPN	0.0	-1.13	0.1	1.13	0.0	-0.73	0.06	0.73	1.59	1.08	1.62	WN, GR, BY
1 WPN	0.0	-0.9	0.1	0.9	0.0	-0.78	0.07	0.79	1.18	0.85	1.25	grey surround
2 WPN	0.0	-0.75	0.08	0.75	0.0	-0.81	0.08	0.81	1.0	0.72	1.07	$\bar{Y}_C=16.6$
3 WPN	0.01	-0.71	0.06	0.71	0.09	-0.89	0.06	0.9	1.01	0.69	1.03	with white
4 WPN	0.0	-0.62	0.07	0.62	0.0	-0.85	0.08	0.86	0.84	0.59	0.87	border
5 WPN	0.0	-0.64	0.07	0.64	0.0	-0.9	0.08	0.9	0.89	0.6	0.88	$X_W=95.18$
6 WPN	0.0	-0.66	0.06	0.67	0.0	-0.89	0.08	0.89	0.89	0.64	0.94	$Y_W=100.0$
7 WPN	0.0	-0.8	0.07	0.8	0.0	-0.84	0.07	0.84	1.08	0.77	1.14	$Z_W=44.15$
8 WPN	0.0	-0.85	0.1	0.86	0.0	-0.84	0.08	0.84	1.22	0.84	1.25	$x_W=0.3977$
9 WPN	0.0	-0.69	0.07	0.69	0.0	-0.75	0.06	0.75	1.05	0.69	1.03	$y_W=0.4178$
10 WPN	0.0	-0.61	0.03	0.61	0.0	-0.68	0.03	0.68	1.93	0.61	0.91	near P4000
11 WDN	0.0	-0.56	0.02	0.56	0.06	-0.62	0.04	0.62	0.8	0.55	0.84	WN, GR, BY
12 WDN	0.0	-0.49	0.02	0.49	0.0	-0.59	0.05	0.59	0.73	0.48	0.73	grey surround
13 WDN	0.0	-0.49	0.02	0.49	0.0	-0.63	0.04	0.64	0.69	0.48	0.72	$\bar{Y}_C=16.6$
14 WDN	0.0	-0.5	0.01	0.5	0.0	-0.67	0.04	0.67	0.7	0.49	0.73	with white
15 WDN	0.0	-0.53	0.02	0.53	0.0	-0.71	0.06	0.71	0.76	0.52	0.78	border
16 WDN	0.0	-0.53	0.02	0.53	0.0	-0.69	0.06	0.69	0.79	0.53	0.79	$X_W=90.38$
17 WDN	0.0	-0.61	0.02	0.61	0.0	-0.74	0.06	0.74	0.93	0.61	0.91	$Y_W=100.0$
18 WDN	0.0	-0.61	0.03	0.61	0.0	-0.7	0.06	0.7	0.89	0.6	0.9	$Z_W=87.54$
19 WDN	0.0	-0.7	0.02	0.7	0.0	-0.71	0.05	0.71	0.99	0.68	1.02	$x_W=0.3251$
20 WDN	0.0	-0.7	0.03	0.7	0.0	-0.62	0.05	0.63	0.96	0.67	1.01	$y_W=0.3598$
21 WDN	0.0	-0.68	0.03	0.69	0.0	-0.63	0.05	0.63	0.95	0.66	1.0	near D65
22 GDR	0.01	-3.6	0.4	3.6	0.11	-1.27	0.11	1.28	1.16	0.81	0.8	WN, GR, BY
23 GDR	0.01	-2.46	0.04	2.46	0.11	-1.33	0.11	1.34	0.96	0.78	0.77	grey surround
24 GDR	0.01	-1.69	0.05	1.69	0.11	-1.31	0.13	1.32	0.89	0.78	0.79	$\bar{Y}_C=16.6$
25 GDR	0.01	-1.19	0.02	1.19	0.09	-1.12	0.05	1.13	0.84	0.73	0.86	with white
26 GDR	0.01	-0.94	0.04	0.95	0.1	-1.02	0.1	1.04	0.97	0.76	1.0	border
27 GDR	0.01	-0.78	0.02	0.78	0.09	-0.94	0.06	0.95	1.13	0.77	1.12	$X_W=90.38$
28 GDR	0.01	-0.99	0.04	0.99	0.11	-1.1	0.11	1.11	0.51	0.42	0.43	$Y_W=100.0$
29 GDR	0.01	-0.96	0.04	0.96	0.12	-0.95	0.12	0.96	0.35	0.26	0.26	$Z_W=87.54$
30 GDR	0.01	-1.1	0.03	1.1	0.1	-0.97	0.09	0.98	0.37	0.24	0.24	$x_W=0.3251$
31 GDR	0.01	-1.04	0.04	1.04	0.09	-0.87	0.11	0.88	0.33	0.2	0.2	$y_W=0.3598$
32 GDR	0.02	-1.1	0.03	1.1	0.2	-0.89	0.11	0.92	0.34	0.2	0.2	near D65
33 BDY	0.01	-0.94	0.01	0.94	0.1	-1.04	0.03	1.05	0.8	0.68	0.75	WN, GR, BY
34 BDY	0.01	-0.8	0.01	0.8	0.09	-0.92	0.04	0.93	0.8	0.62	0.81	grey surround
35 BDY	0.01	-0.8	0.02	0.8	0.1	-0.93	0.07	0.94	0.95	0.67	0.94	$\bar{Y}_C=16.6$
36 BDY	0.01	-0.77	0.01	0.77	0.1	-0.9	0.03	0.9	1.0	0.68	0.98	with white
37 BDY	0.01	-0.76	0.02	0.76	0.1	-0.91	0.06	0.92	1.0	0.72	1.07	border
38 BDY	0.0	-0.7	0.03	0.7	0.0	-0.85	0.07	0.85	1.07	0.7	1.02	$X_W=90.38$
39 BDY	0.01	-0.78	0.03	0.78	0.09	-0.95	0.05	0.95	1.24	0.67	1.02	$Y_W=100.0$
40 BDY	0.01	-0.88	0.06	0.89	0.09	-1.02	0.06	1.03	0.93	0.62	0.77	$Z_W=87.54$
41 BDY	0.01	-0.86	0.11	0.86	0.1	-1.01	0.08	1.02	0.78	0.55	0.65	$x_W=0.3251$
42 BDY	0.01	-0.95	0.21	0.98	0.09	-1.12	0.09	1.13	0.74	0.54	0.66	$y_W=0.3598$
43 BDY	0.01	-0.92	0.4	1.01	0.08	-1.08	0.08	1.09	0.64	0.46	0.58	near D65
mean				0.91				0.89	0.88	0.62	0.85	
standard deviation				0.52				0.18	0.24	0.17	0.27	

Samples: bright white (W, no. 0), dark black (S, no. 10), White (W, no. 11), Black (N, no. 21)
Green (G=T (turquoise), no. 22), Red (R=M (magenta), no. 32), Blue (B, no. 33), Yellow (Y, no. 43)
Source: BAM Research Report no. 115 (1985), Tables 5.40:1 to 11; LABJND0.7; 1.3; 1.2

Colour stimuli of just noticeable colour thresholds (p=50%) in BY direction												
number Colour series	CIELAB differences lightness, chroma, Σ				LABJND differences lightness, chroma, Σ				colour differences other formulae			notes experimental series
	ΔL^*	Δa^*	Δb^*	ΔE_{ab}	ΔL^*	Δa^*	Δb^*	ΔE	CMC/C94	C00		
0 WPN	0.0	-0.14	-1.75	1.75	0.04	-0.09	-0.97	0.98	2.49	1.71	1.71	WN, GR, BY
1 WPN	0.0	-0.1	-1.16	1.16	0.05	-0.09	-0.9	0.91	1.4	1.02	1.0	grey surround
2 WPN	0.0	-0.08	-1.01	1.02	0.05	-0.09	-0.98	0.98	1.32	0.93	0.91	$\bar{Y}_C=16.6$
3 WPN	0.0	-0.08	-0.94	0.95	0.0	-0.11	-1.04	1.04	1.4	0.93	0.92	with white
4 WPN	0.0	-0.09	-1.08	1.08	0.0	-0.12	-1.25	1.25	1.43	1.01	1.02	border
5 WPN	0.0	-0.1	-1.31	1.32	0.0	-0.14	-1.42	1.42	1.55	1.12	1.15	$X_W=95.18$
6 WPN	0.0	-0.08	-0.97	0.98	0.0	-0.11	-1.2	1.21	1.29	0.9	0.89	$Y_W=100.0$
7 WPN	0.0	-0.12	-1.12	1.13	0.0	-0.13	-1.11	1.12	1.51	1.05	1.03	$Z_W=44.15$
8 WPN	0.0	-0.12	-1.26	1.27	0.0	-0.12	-1.06	1.07	1.88	1.24	1.21	$x_W=0.3977$
9 WPN	0.0	-0.08	-0.91	0.92	0.0	-0.08	-0.85	0.85	1.41	0.91	0.91	$y_W=0.4178$
10 WPN	0.0	-0.04	-0.84	0.84	0.0	-0.04	-0.82	0.82	1.27	0.84	0.84	near P4000
11 WDN	0.0	-0.04	-0.24	0.25	0.0	-0.05	-0.47	0.48	0.35	0.24	0.24	WN, GR, BY
12 WDN	0.0	-0.04	-0.24	0.25	0.0	-0.05	-0.53	0.54	0.37	0.24	0.25	grey surround
13 WDN	0.0	-0.04	-0.26	0.27	0.0	-0.05	-0.63	0.63	0.38	0.25	0.25	$\bar{Y}_C=16.6$
14 WDN	0.0	-0.04	-0.28	0.28	0.0	-0.05	-0.7	0.7	0.4	0.27	0.27	with white
15 WDN	0.0	-0.02	-0.27	0.27	0.0	-0.03	-0.67	0.67	0.39	0.26	0.26	border
16 WDN	0.0	-0.07	-0.32	0.33	0.0	-0.09	-0.76	0.77	0.5	0.32	0.33	$X_W=90.38$
17 WDN	0.0	-0.06	-0.34	0.35	0.0	-0.08	-0.76	0.76	0.54	0.35	0.36	$Y_W=100.0$
18 WDN	0.0	-0.08	-0.36	0.37	0.0	-0.09	-0.72	0.73	0.54	0.36	0.37	$Z_W=87.54$
19 WDN	0.0	-0.06	-0.39	0.39	0.0	-0.06	-0.67	0.68	0.55	0.37	0.38	$x_W=0.3251$
20 WDN	0.0	-0.12	-0.44	0.46	0.0	-0.11	-0.67	0.68	0.6	0.42	0.44	$y_W=0.3598$
21 WDN	0.0	-0.08	-0.42	0.43	0.0	-0.07	-0.68	0.69	0.58	0.4	0.41	near D65
22 GDR	0.0	-0.25	-0.51	0.57	0.0	-0.09	-1.25	1.25	0.22	0.22	0.22	WN, GR, BY
23 GDR	0.0	-0.22	-0.51	0.55	0.0	-0.12	-1.21	1.22	0.26	0.27	0.28	grey surround
24 GDR	0.0	-0.11	-0.46	0.47	0.0	-0.09	-1.06	1.07	0.3	0.31	0.31	$\bar{Y}_C=16.6$
25 GDR	0.0	-0.1	-0.47	0.48	0.0	-0.1	-1.07	1.08	0.41	0.37	0.35	with white
26 GDR	0.0	-0.09	-0.5	0.51	0.0	-0.1	-1.12	1.13	0.58	0.45	0.44	border
27 GDR	0.0	-0.09	-0.48	0.49	0.0	-0.11	-1.07	1.08	0.71	0.48	0.48	$X_W=90.38$
28 GDR	0.0	-0.1	-0.55	0.56	0.0	-0.11	-1.28	1.28	0.75	0.39	0.33	$Y_W=100.0$
29 GDR	0.01	-0.12	-0.6	0.62	0.12	-0.13	-1.43	1.44	0.59	0.32	0.27	$Z_W=87.54$
30 GDR	0.01	-0.07	-0.63	0.63	0.1	-0.08	-1.5	1.51	0.54	0.28	0.23	$x_W=0.3251$
31 GDR	0.01	-0.06	-0.69	0.69	0.09	-0.06	-1.67	1.67	0.58	0.28	0.23	$y_W=0.3598$
32 GDR	0.01	-0.08	-0.74	0.75	0.09	-0.07	-1.81	1.81	0.58	0.29	0.23	near D65
33 BDY	0.0	-0.09	-0.36	0.37	0.0	-0.1	-0.89	0.89	0.2	0.17	0.17	WN, GR, BY
34 BDY	0.0	-0.12	-0.46	0.48	0.0	-0.14	-1.13	1.14	0.3	0.26	0.27	grey surround
35 BDY	0.0	-0.1	-0.42	0.44	0.0	-0.12	-1.0	1.01	0.34	0.28	0.29	$\bar{Y}_C=16.6$
36 BDY	0.0	-0.1	-0.42	0.43	0.0	-0.11	-0.97	0.98	0.41	0.32	0.33	with white
37 BDY	0.0	-0.1	-0.46	0.47	0.0	-0.11	-1.02	1.03	0.56	0.41	0.41	border
38 BDY	0.0	-0.09	-0.45	0.46	0.0	-0.11	-1	1.0	0.69	0.45	0.46	$X_W=90.38$
39 BDY	0.0	-0.13	-0.74	0.75	0.0	-0.16	-1.22	1.23	0.6	0.5	0.51	$Y_W=100.0$
40 BDY	0.0	-0.09	-0.81	0.82	0.0	-0.1	-0.83	0.84	0.42	0.36	0.36	$Z_W=87.54$
41 BDY	0.0	-0.08	-1.24	1.24	0.0	-0.09	-0.92	0.92	0.54	0.45	0.45	$x_W=0.3251$
42 BDY	0.0	-0.09	-2.0	2.0	0.0	-0.11	-0.9	0.91	0.75	0.58	0.59	$y_W=0.3598$
43 BDY	0.01	-0.11	-4.84	4.85	0.08	-0.13	-0.99	1.0	1.59	1.1	1.14	near D65
mean				0.79				1.01	0.77	0.54	0.53	
standard deviation				0.73				0.28	0.51	0.35	0.35	