

Colour stimuli of just noticeable colour thresholds ($p=50\%$) in 3 directions

number Colour series	Colour stimuli colour values	Colour stimuli differences at threshold	notes experimental series
	y x	WN Δx Δy Δz	
0 WPN	196.9 0.3986 0.4175 1.19	-0.0011 0.0009 -0.0016	WN, GR, BY
1 WPN	74.13 0.3919 0.4139 0.41	-0.0012 0.0011 -0.0016	grey surround
2 WPN	34.31 0.3926 0.414 0.18	-0.0013 0.0011 -0.0017	CIE data no. 03
3 WPN	17.69 0.3973 0.4153 0.09	-0.0016 0.0013 -0.002	with white
4 WPN	9.15 0.4052 0.4185 0.07	-0.0017 0.0015 -0.0029	border
5 WPN	4.65 0.4159 0.4226 0.05	-0.0023 0.002 -0.0042	
6 WPN	3.14 0.386 0.4113 0.04	-0.0027 0.0022 -0.0039	
7 GDR	14.96 0.1198 0.3961 0.06	-0.0061 0.003 -0.0012	WN, GR, BY
8 GDR	15.71 0.2422 0.3728 0.06	-0.0037 0.0021 -0.0013	grey surround
9 GDR	16.52 0.321 0.3578 0.06	-0.0017 0.001 -0.0016	CIE data no. 09
10 GDR	16.96 0.4598 0.2388 0.07	-0.0022 0.0011 -0.0022	with white
11 GDR	17.17 0.485 0.2119 0.09	-0.002 0.0009 -0.0026	border
12 BDY	17.29 0.2497 0.2914 0.07	-0.0018 0.0008 -0.0011	WN, GR, BY
13 BDY	17.26 0.2877 0.3257 0.06	-0.0017 0.0009 -0.0013	grey surround
14 BDY	16.44 0.3232 0.3593 0.06	-0.0016 0.001 -0.0014	CIE data no. 14
15 BDY	17.72 0.4338 0.4529 0.05	-0.002 0.0019 -0.0026	with white
16 BDY	18.46 0.4841 0.4968 0.05	-0.002 0.0025 -0.0037	border

Samples: bright white (W, no. 0), dark black (S, no. 10), White (W, no. 11), Black (N, no. 21)
Green (G-T (turquois), 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

Colour stimuli of just noticeable colour thresholds ($p=50\%$) in WN direction

number Colour series	CIELAB differences lightness, chroma, Σ	LABJND differences lightness, chroma, Σ	colour differences other formulae CMC/C94/C00	notes experimental WN series
	ΔL^* Δa^* Δb^* ΔE^*_{ab}	ΔL^* Δa^* Δb^* ΔE^*_{ab}		
0 WPN	0.29 0.0 0.0 0.29	1.54 0.0 0.0 1.54	0.14 0.29 0.13	
1 WPN	0.19 0.0 0.0 0.19	1.37 0.0 0.0 1.37	0.1 0.19 0.12	grey surround
2 WPN	0.14 0.0 0.0 0.14	1.24 0.0 0.0 1.24	0.09 0.14 0.11	CIE data no. 03
3 WPN	0.12 0.0 0.0 0.12	1.23 0.0 0.0 1.23	0.09 0.12 0.12	with white
4 WPN	0.15 -0.01 -0.01 0.15	1.7 -0.05 -0.03 1.7	0.14 0.15 0.12	border
5 WPN	0.15 -0.02 -0.03 0.15	1.73 -0.07 -0.08 1.73	0.19 0.15 0.11	
6 WPN	0.19 0.0 0.02 0.19	2.11 0.0 0.07 2.12	0.28 0.19 0.13	
7 GDR	0.09 0.46 0.03 0.47	0.67 0.24 0.14 0.73	0.16 0.13 0.13	
8 GDR	0.09 0.11 0.01 0.14	0.64 0.14 0.04 0.66	0.09 0.1 0.1	grey surround
9 GDR	0.08 0.0 0.0 0.08	0.61 0.0 0.0 0.61	0.07 0.08 0.08	CIE data no. 09
10 GDR	0.1 -0.17 0.04 0.2	0.69 -0.31 0.18 0.78	0.09 0.1 0.1	with white
11 GDR	0.11 -0.25 0.06 0.28	0.77 -0.4 0.27 0.91	0.11 0.12 0.12	border
12 BDY	0.08 0.0 0.03 0.09	0.59 0.0 0.18 0.62	0.07 0.08 0.08	
13 BDY	0.07 0.0 0.01 0.07	0.51 0.0 0.08 0.51	0.06 0.07 0.07	grey surround
14 BDY	0.07 0.0 0.0 0.07	0.54 0.0 0.0 0.54	0.06 0.07 0.07	CIE data no. 14
15 BDY	0.07 -0.01 -0.17 0.19	0.5 -0.03 -0.17 0.53	0.09 0.09 0.09	with white
16 BDY	0.07 -0.01 -0.8 0.8	0.48 -0.02 -0.19 0.52	0.27 0.2 0.2	border

mean standard deviation
0.21 0.17
1.02 0.13 0.11
0.5 0.06 0.05 0.02

Source: BAM Research Report no. 115 (1985), Tables 5.40;1 to 11

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 CMC/C94/C00	notes experimental GR series
	ΔL^* Δa^* Δb^* ΔE^*_{ab}	ΔL^* Δa^* Δb^* ΔE^*_{ab}		
0 WPN	0.01 -1.13 0.1 1.13	0.06 -1.31 0.1 1.31	1.59 1.08 1.62	
1 WPN	0.0 -0.9 0.1 0.9	0.07 -1.4 0.13 1.4	1.18 0.85 1.25	grey surround
2 WPN	0.0 -0.75 0.08 0.75	0.06 -1.45 0.14 1.46	1.0 0.72 1.07	CIE data no. 03
3 WPN	0.01 -0.71 0.06 0.71	0.11 -1.6 0.11 1.6	1.01 0.69 1.03	with white
4 WPN	0.0 -0.62 0.07 0.62	0.0 -1.53 0.15 1.54	0.84 0.59 0.87	border
5 WPN	0.0 -0.64 0.07 0.64	0.0 -1.61 0.14 1.61	0.89 0.6 0.88	
6 WPN	0.0 -0.66 0.06 0.67	0.0 -1.58 0.14 1.59	0.89 0.64 0.94	
7 GDR	0.01 -3.6 0.04 3.6	0.09 -1.51 0.12 1.52	1.16 0.81 0.8	
8 GDR	0.01 -1.69 0.05 1.69	0.09 -1.55 0.14 1.56	0.89 0.78 0.79	grey surround
9 GDR	0.01 -0.78 0.02 0.78	0.07 -1.12 0.07 1.13	1.13 0.77 1.12	CIE data no. 09
10 GDR	0.01 -1.1 0.03 1.1	0.08 -1.16 0.1 1.17	0.37 0.24 0.24	with white
11 GDR	0.02 -1.1 0.03 1.1	0.17 -1.06 0.12 1.08	0.34 0.2 0.2	border
12 BDY	0.01 -0.94 0.01 0.94	0.08 -1.24 0.04 1.25	0.8 0.68 0.75	
13 BDY	0.01 -0.8 0.02 0.8	0.08 -1.1 0.07 1.1	0.95 0.67 0.94	grey surround
14 BDY	0.0 -0.7 0.03 0.7	0.0 -1.01 0.07 1.01	1.07 0.7 1.02	CIE data no. 14
15 BDY	0.01 -0.86 0.11 0.86	0.08 -1.21 0.08 1.21	0.78 0.55 0.65	with white
16 BDY	0.01 -0.92 0.4 1.01	0.07 -1.28 0.08 1.29	0.64 0.46 0.58	border

mean standard deviation
1.06 0.68
1.34 0.91 0.65 0.87
0.19 0.28 0.2 0.33

Source: BAM Research Report no. 115 (1985), Tables 5.40;1 to 11

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 CMC/C94/C00	notes experimental BY series
	ΔL^* Δa^* Δb^* ΔE^*_{ab}	ΔL^* Δa^* Δb^* ΔE^*_{ab}		
0 WPN	0.0 -0.14 -1.75 1.75	0.05 -0.16 -1.69 1.7	2.49 1.71 1.71	
1 WPN	0.0 -0.1 -1.16 1.16	0.07 -0.16 -1.56 1.57	1.4 1.02 1.0	grey surround
2 WPN	0.0 -0.08 -1.01 1.02	0.06 -0.16 -1.7 1.7	1.32 0.93 0.91	CIE data no. 03
3 WPN	0.0 -0.08 -0.94 0.95	0.0 -0.19 -1.8 1.81	1.4 0.93 0.92	with white
4 WPN	0.0 -0.09 -1.08 1.08	0.0 -0.23 -2.16 2.17	1.43 1.01 1.02	border
5 WPN	0.0 -0.1 -1.31 1.32	0.0 -0.26 -2.46 2.47	1.55 1.12 1.15	
6 WPN	0.0 -0.08 -0.97 0.98	0.0 -0.2 -2.09 2.1	1.29 0.9 0.89	
7 GDR	0.0 -0.25 -0.51 0.57	0.0 -0.1 -1.36 1.37	0.22 0.22 0.22	
8 GDR	0.0 -0.11 -0.46 0.47	0.0 -0.1 -1.16 1.16	0.3 0.31 0.31	grey surround
9 GDR	0.0 -0.09 -0.48 0.49	0.0 -0.14 -1.17 1.18	0.71 0.48 0.48	CIE data no. 09
10 GDR	0.01 -0.07 -0.63 0.63	0.08 -0.09 -1.64 1.64	0.54 0.28 0.23	with white
11 GDR	0.01 -0.08 -0.74 0.75	0.07 -0.09 -1.97 1.97	0.58 0.29 0.23	border
12 BDY	0.0 -0.09 -0.36 0.37	0.0 -0.12 -0.97 0.97	0.2 0.17 0.17	
13 BDY	0.0 -0.1 -0.42 0.44	0.0 -0.15 -1.09 1.1	0.34 0.28 0.29	grey surround
14 BDY	0.0 -0.09 -0.45 0.46	0.0 -0.13 -1.08 1.09	0.69 0.45 0.46	CIE data no. 14
15 BDY	0.0 -0.08 -1.24 1.24	0.0 -0.11 -1.0 1.01	0.54 0.45 0.45	with white
16 BDY	0.01 -0.11 -4.84 4.85	0.07 -0.16 -1.07 1.09	1.59 1.1 1.14	border

mean standard deviation
1.09 1.01
1.54 0.98 0.69 0.68
0.44 0.61 0.42 0.43

Source: BAM Research Report no. 115 (1985), Tables 5.40;1 to 11

TUB-test chart XE02; Colour thresholds data
RI experiments: Series WPN, GDR, BDY in directions WN, GR, BY; LABJND_A & D65

input: w/rgb/cmyk -> w/rgb/cmyk-