

Colour stimuli of just noticeable colour thresholds ($p=50\%$) in 2 directions

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 GDV	0.01	-2.62	0.24	2.63	0.12	-1.66	0.2	1.67	0.86	0.65	0.58	TM
1 GDV	0.01	-2.04	0.12	2.04	0.11	-1.83	0.18	1.84	0.77	0.65	0.6	grey surround
2 GDV	0.01	-1.07	0.05	1.07	0.12	-1.36	0.12	1.37	0.51	0.46	0.44	$\bar{Y}_C=16.6$
3 GDV	0.01	-0.99	0.04	0.99	0.13	-1.58	0.13	1.6	0.64	0.56	0.63	with white
4 GDV	0.01	-0.91	0.04	0.91	0.11	-1.74	0.16	1.75	0.87	0.69	0.9	border
5 GDV	0.01	-0.76	0.04	0.76	0.13	-1.65	0.17	1.67	1.11	0.75	1.13	$X_W=90.38$
6 GDV	0.01	-0.93	0.02	0.93	0.14	-2.01	0.09	2.02	1.08	0.68	0.89	$Y_W=100.0$
7 GDV	0.01	-0.88	0.04	0.89	0.15	-1.87	0.18	1.88	0.72	0.49	0.53	$Z_W=87.54$
8 GDV	0.01	-0.92	0.02	0.92	0.15	-1.88	0.11	1.89	0.64	0.44	0.43	$x_W=0.3251$
9 GDV	0.01	-0.87	0.01	0.87	0.15	-1.76	0.09	1.77	0.55	0.38	0.37	$y_W=0.3598$
10 GDV	0.01	-0.89	0.02	0.89	0.15	-1.76	0.14	1.77	0.52	0.36	0.34	
11 RDC	0.01	-0.84	0.28	0.89	0.13	-1.41	0.21	1.44	0.62	0.33	0.38	TM
12 RDC	0.01	-0.94	0.17	0.96	0.13	-1.7	0.26	1.73	0.63	0.36	0.39	grey surround
13 RDC	0.01	-0.76	0.08	0.77	0.12	-1.45	0.23	1.48	0.42	0.29	0.29	$\bar{Y}_C=16.6$
14 RDC	0.01	-0.79	0.05	0.79	0.11	-1.6	0.15	1.61	0.61	0.4	0.43	with white
15 RDC	0.01	-0.79	0.04	0.79	0.11	-1.66	0.14	1.67	0.77	0.53	0.68	border
16 RDC	0.01	-0.7	0.03	0.7	0.11	-1.51	0.12	1.52	1.01	0.69	1.02	$X_W=90.38$
17 RDC	0.01	-0.96	0.03	0.96	0.12	-1.69	0.12	1.7	0.74	0.63	0.77	$Y_W=100.0$
18 RDC	0.01	-1.21	0.04	1.21	0.13	-1.59	0.17	1.6	0.6	0.52	0.52	$Z_W=87.54$
19 RDC	0.01	-1.36	0.02	1.36	0.11	-1.51	0.09	1.51	0.57	0.48	0.48	$x_W=0.3251$
20 RDC	0.01	-1.54	0.03	1.54	0.12	-1.45	0.12	1.46	0.58	0.46	0.46	$y_W=0.3598$
21 RDC	0.01	-2.06	0.03	2.06	0.12	-1.68	0.15	1.69	0.72	0.54	0.54	
22 GDV	0.01	-0.27	-2.11	2.13	0.12	-0.16	-1.83	1.84	0.86	0.81	0.67	GV
23 GDV	0.01	-0.19	-1.15	1.17	0.0	-0.17	-1.78	1.79	0.55	0.56	0.48	grey surround
24 GDV	0.0	-0.15	-0.82	0.83	0.0	-0.2	-1.94	1.95	0.51	0.52	0.46	$\bar{Y}_C=16.6$
25 GDV	0.0	-0.11	-0.71	0.72	0.0	-0.17	-2.12	2.13	0.59	0.54	0.49	with white
26 GDV	0.0	-0.1	-0.6	0.61	0.0	-0.2	-2.09	2.1	0.71	0.54	0.51	border
27 GDV	0.0	-0.09	-0.52	0.53	0.0	-0.21	-1.99	2.0	0.78	0.51	0.52	$X_W=90.38$
28 GDV	0.01	-0.13	-0.62	0.63	0.14	-0.3	-2.49	2.51	1.09	0.54	0.51	$Y_W=100.0$
29 GDV	0.0	-0.14	-0.55	0.57	0.0	-0.3	-2.33	2.35	0.77	0.41	0.37	$Z_W=87.54$
30 GDV	0.01	-0.12	-0.58	0.59	0.15	-0.27	-2.51	2.53	0.67	0.39	0.35	$x_W=0.3251$
31 GDV	0.01	-0.12	-0.57	0.58	0.15	-0.27	-2.5	2.52	0.6	0.35	0.32	$y_W=0.3598$
32 GDV	0.01	-0.1	-0.54	0.55	0.15	-0.22	-2.41	2.43	0.53	0.32	0.28	
33 RDC	0.01	-0.06	-2.38	2.39	0.13	-0.13	-1.89	1.9	1.59	0.86	1.0	GV
34 RDC	0.01	-0.1	-1.31	1.32	0.13	-0.2	-2.15	2.16	1.08	0.6	0.65	grey surround
35 RDC	0.01	-0.08	-0.89	0.9	0.12	-0.17	-2.6	2.6	1.0	0.53	0.51	$\bar{Y}_C=16.6$
36 RDC	0.01	-0.11	-0.79	0.8	0.11	-0.24	-2.34	2.36	1.05	0.53	0.52	with white
37 RDC	0.0	-0.09	-0.65	0.65	0.0	-0.19	-2.24	2.25	1.2	0.53	0.5	border
38 RDC	0.0	-0.12	-0.5	0.51	0.0	-0.27	-1.91	1.93	0.75	0.49	0.51	$X_W=90.38$
39 RDC	0.0	-0.1	-0.53	0.54	0.0	-0.19	-2.09	2.1	0.51	0.44	0.42	$Y_W=100.0$
40 RDC	0.0	-0.15	-0.57	0.59	0.0	-0.2	-2.27	2.28	0.36	0.37	0.38	$Z_W=87.54$
41 RDC	0.0	-0.12	-0.52	0.53	0.0	-0.14	-2.05	2.05	0.28	0.3	0.31	$x_W=0.3251$
42 RDC	0.0	-0.15	-0.5	0.52	0.0	-0.15	-1.98	1.99	0.24	0.26	0.27	$y_W=0.3598$
43 RDC	0.01	-0.21	-0.51	0.55	0.12	-0.16	-2.04	2.05	0.24	0.25	0.26	
mean				0.98			1.92	0.72	0.5	0.52		
standard deviation				0.51			0.32	0.26	0.14	0.2		

Samples: Green (G, no. 00), Violet V (no. 10), Red (R, no. 11), Cyan (C, no. 21)
Turquois (T, no. 22), Magenta (M, 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 2 directions

number Colour series	CIELAB differences lightness, chroma, Σ				LABJND differences lightness, chroma, Σ				colour differences other formulae			notes experimental series
	ΔL^*	Δa^*	Δb^*	ΔE_{38}^*	ΔL^*	Δa^*	Δb^*	ΔE^*	CMC	C94	C00	
0 GDV	0.04	-3.07	0.22	3.78	0.5	-1.91	1.87	2.72	1.13	0.72	0.71	BY
1 GDV	0.03	-1.88	1.06	2.16	0.39	-1.66	1.6	2.34	0.75	0.55	0.54	grey surround
2 GDV	0.03	-1.35	0.66	1.51	0.4	-1.7	1.55	2.34	0.68	0.57	0.56	$\bar{Y}_C=16.6$
3 GDV	0.03	-1.23	0.56	1.35	0.39	-1.96	1.65	2.6	0.83	0.72	0.79	with white
4 GDV	0.02	-1.06	0.46	1.15	0.27	-2.01	1.6	2.58	1.06	0.86	1.07	border
5 GDV	0.02	-0.79	0.35	0.86	0.26	-1.71	1.34	2.19	1.24	0.85	1.21	$X_W=90.38$
6 GDV	0.02	-0.96	0.41	1.04	0.3	-2.08	1.66	2.68	0.89	0.71	0.92	$Y_W=100.0$
7 GDV	0.02	-1.0	0.41	1.08	0.3	-2.12	1.78	2.79	0.64	0.54	0.59	$Z_W=87.54$
8 GDV	0.04	-1.11	0.47	1.21	0.47	-2.3	2.09	3.14	0.59	0.49	0.5	$x_W=0.3251$
9 GDV	0.04	-1.12	0.46	1.21	0.46	-2.28	2.11	3.15	0.54	0.44	0.44	$y_W=0.3598$
10 GDV	0.04	-1.06	0.44	1.15	0.47	-2.13	2.05	3.0	0.48	0.38	0.38	
11 RDC	0.03	-0.86	1.88	2.07	0.4	-1.49	1.46	2.13	1.67	0.88	1.03	BY
12 RDC	0.02	-0.76	0.85	1.14	0.28	-1.39	1.36	1.97	1.07	0.57	0.63	grey surround
13 RDC	0.02	-0.89	0.59	1.07	0.27	-1.72	1.71	2.44	0.97	0.54	0.53	$\bar{Y}_C=16.6$
14 RDC	0.02	-0.9	0.56	1.06	0.26	-1.83	1.64	2.48	1.28	0.67	0.69	with white
15 RDC	0.02	-0.72	0.36	0.81	0.27	-1.52	1.26	2.0	1.19	0.6	0.71	border
16 RDC	0.02	-0.79	0.35	0.87	0.26	-1.71	1.35	2.19	1.23	0.85	1.2	$X_W=90.38$
17 RDC	0.02	-1.04	0.42	1.12	0.28	-1.83	1.67	2.5	0.94	0.8	0.94	$Y_W=100.0$
18 RDC	0.03	-1.55	0.5	1.63	0.39	-2.01	2.0	2.86	0.85	0.79	0.8	$Z_W=87.54$
19 RDC	0.03	-1.68	0.5	1.76	0.36	-1.85	2.0	2.75	0.79	0.72	0.72	$x_W=0.3251$
20 RDC	0.03	-1.77	0.49	1.84	0.37	-1.65	1.96	2.59	0.73	0.64	0.64	$y_W=0.3598$
21 RDC	0.03	-2.14	0.54	2.21	0.36	-1.73	2.16	2.79	0.81	0.67	0.68	
22 GDV	0.01	2.56	1.73	3.09	0.12	1.64	1.48	2.22	1.24	1.16	0.96	RC
23 GDV	0.01	1.63	0.82	1.83	0.11	1.48	1.25	1.95	0.81	0.8	0.69	grey surround
24 GDV	0.01	1.38	0.59	1.5	0.12	1.77	1.4	2.26	0.83	0.82	0.75	$\bar{Y}_C=16.6$
25 GDV	0.01	0.95	0.37	1.02	0.13	1.53	1.11	1.9	0.74	0.67	0.71	with white
26 GDV	0.01	0.81	0.3	0.87	0.11	1.56	1.05	1.88	0.88	0.7	0.87	border
27 GDV	0.01	0.67	0.24	0.72	0.13	1.47	0.93	1.74	1.03	0.7	1.03	$X_W=90.38$
28 GDV	0.01	0.85	0.3	0.91	0.14	1.84	1.23	2.22	1.35	0.74	0.89	$Y_W=100.0$
29 GDV	0.01	0.92	0.31	0.97	0.15	1.91	1.34	2.34	1.08	0.63	0.64	$Z_W=87.54$
30 GDV	0.01	0.9	0.29	0.95	0.15	1.82	1.31	2.25	0.88	0.54	0.51	$x_W=0.3251$
31 GDV	0.01	0.91	0.29	0.95	0.15	1.79	1.32	2.23	0.8	0.5	0.46	$y_W=0.3598$
32 GDV	0.01	0.91	0.29	0.95	0.15	1.75	1.32	2.2	0.74	0.47	0.43	
33 RDC	0.02	1.19	2.53	2.8	0.26	1.92	1.98	2.77	1.33	0.76	0.84	RC
34 RDC	0.01	0.98	1.05	1.44	0.13	1.73	1.69	2.42	0.65	0.43	0.44	grey surround
35 RDC	0.01	1.01	0.61	1.18	0.12	1.89	1.76	2.59	0.63	0.44	0.44	$\bar{Y}_C=16.6$
36 RDC	0.01	0.84	0.44	0.95	0.11	1.68	1.3	2.13	0.54	0.45	0.46	with white
37 RDC	0.01	0.77	0.32	0.83	0.11	1.61	1.12	1.97	0.68	0.56	0.67	border
38 RDC	0.01	0.6	0.2	0.63	0.11	1.3	0.79	1.52	0.89	0.61	0.89	$X_W=90.38$
39 RDC	0.01	1.25	0.41	1.32	0.12	2.22	1.62	2.76	0.96	0.82	1.02	$Y_W=100.0$
40 RDC	0.01	1.35	0.36	1.4	0.13	1.78	1.46	2.31	0.67	0.57	0.58	$Z_W=87.54$
41 RDC	0.01	1.7	0.42	1.75	0.11	1.91	1.66	2.53	0.72	0.59	0.6	$x_W=0.3251$
42 RDC	0.01	2.08	0.46	2.14	0.12	1.98	1.84	2.71	0.79	0.61	0.62	$y_W=0.3598$
43 RDC	0.01	2.55	0.49	2.6	0.12	2.1	1.95	2.87	0.89	0.65	0.66	
mean				1.43				2.41	0.9	0.65	0.71	
standard deviation				0.66				0.36	0.25	0.15	0.21	

Samples: Green (G, no. 00), Violet V (no. 10), Red (R, no. 11), Cyan (C, no. 21)
Turquois (T, no. 22), Magenta (M, no. 32), Blue (B, no. 33), Yellow (Y, no. 43)
Source: BAM Research Report no. 115 (1985), Tables 5.40:1 to 11

TUB-test chart VE69; Colour thresholds data
RI experiments: Series GDV, RDC in directions TM, BY, GV, RC

input: w/rbg/cmyk -> w/rbg/cmyk-