

Colour stimuli of just noticeable colour thresholds, see Richter (1985)

Colour series number	Colour stimuli colour values			Colour stimuli differences at threshold					notes
	Y	x	y	-WN ΔY	-RG Δx	-BY Δy	-BY Δx	-BY Δy	
WPN_01	197.5	0.3987	0.4175	1.16	-0.0012	0.001	-0.0017	-0.0015	P40
WPN_02	74.3	0.3919	0.414	0.41	-0.0013	0.0011	-0.0016	-0.0013	
WPN_03	34.4	0.3926	0.414	0.18	-0.0013	0.0012	-0.0018	-0.0016	
WPN_04	17.7	0.3973	0.4153	0.1	-0.0017	0.0013	-0.0021	-0.0018	
WPN_05	9.1	0.4052	0.4185	0.08	-0.0018	0.0016	-0.0029	-0.0025	
WPN_06	4.6	0.4158	0.4226	0.05	-0.0024	0.0021	-0.0043	-0.0036	
WPN_07	3.1	0.3861	0.4114	0.05	-0.0027	0.0023	-0.0039	-0.0034	
WPN_08	1.2	0.3831	0.409	0.03	-0.0047	0.0038	-0.0063	-0.0054	
WPN_09	0.6	0.3859	0.4107	0.02	-0.0075	0.006	-0.0103	-0.0089	
WPN_10	0.3	0.3907	0.4143	0.02	-0.0136	0.0109	-0.0162	-0.014	
WPN_11	0.1	0.4019	0.4167	0.02	-0.0203	0.0164	-0.0265	-0.0226	
TDM_01	15.0	0.1204	0.396	0.07	-0.0061	0.003	-0.0012	-0.0023	D65
TDM_02	15.7	0.2425	0.3728	0.07	-0.0037	0.0021	-0.0013	-0.0016	
TDM_03	16.5	0.3211	0.3578	0.07	-0.0018	0.0011	-0.0016	-0.0013	
TDM_04	17.0	0.4596	0.239	0.08	-0.0022	0.0011	-0.0023	-0.001	
TDM_05	17.2	0.4848	0.2122	0.09	-0.0021	0.001	-0.0027	-0.001	
BDY_01	17.3	0.2498	0.2915	0.07	-0.0019	0.0008	-0.0011	-0.001	D65
BDY_02	17.2	0.2878	0.3258	0.06	-0.0017	0.0009	-0.0013	-0.0012	
BDY_03	16.4	0.3231	0.3594	0.06	-0.0016	0.001	-0.0015	-0.0013	
BDY_04	17.7	0.4336	0.4527	0.06	-0.002	0.002	-0.0027	-0.0024	
BDY_05	18.4	0.4838	0.4965	0.06	-0.0021	0.0026	-0.0038	-0.0033	

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	Y	x	y	-WN ΔY	-RG Δx	-BY Δy	-BY Δx	-BY Δy	
WPN_01	197.5	0.3987	0.4175	1.2	-0.0012	0.001	-0.0017	-0.0015	
WPN_02	74.3	0.3919	0.414	0.41	-0.0013	0.0011	-0.0016	-0.0013	
WPN_03	34.4	0.3926	0.414	0.18	-0.0013	0.0012	-0.0018	-0.0016	
WPN_04	17.7	0.3973	0.4153	0.1	-0.0017	0.0013	-0.0021	-0.0018	
WPN_05	9.1	0.4052	0.4185	0.08	-0.0018	0.0016	-0.0029	-0.0025	
WPN_06	4.6	0.4158	0.4226	0.05	-0.0024	0.0021	-0.0043	-0.0036	
WPN_07	3.1	0.3861	0.4114	0.05	-0.0027	0.0023	-0.0039	-0.0034	
WPN_08	1.2	0.3831	0.409	0.03	-0.0047	0.0038	-0.0063	-0.0054	
WPN_09	0.6	0.3859	0.4107	0.02	-0.0075	0.006	-0.01	-0.0089	
WPN_10	0.3	0.3907	0.4143	0.02	-0.014	0.011	-0.016	-0.014	
WPN_11	0.1	0.4019	0.4167	0.02	-0.02	0.016	-0.026	-0.023	
TDM_01									
TDM_02									
TDM_03									
TDM_04									
TDM_05									
BDY_01									
BDY_02									
BDY_03									
BDY_04									
BDY_05									

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TUB-test chart UE38; Colour thresholds data
Experimental data of Richter (1985) for series WN, RG, YB

Colour differences: just noticeable colour thresholds, see Richter (1985/87)

Colour series number	Colour difference ISO 11644-4 (CIELAB)				Colour difference LABJND 1985				Colour difference LABJND 1987			
	ΔL^*	Δa^*	Δb^*	ΔE^*_{ab}	ΔT^*_L	ΔT^*_a	ΔT^*_b	ΔE^*_{ab}	ΔT^*_L	ΔT^*_a	ΔT^*_b	ΔE^*_{ab}
WPN_01	0.28				0.99				0.92			
WPN_02	0.19				0.91				0.85			
WPN_03	0.14				0.83				0.79			
WPN_04	0.12				0.83				0.8			
WPN_05	0.15				1.13				1.12			
WPN_06	0.14				1.13				1.26			
WPN_07	0.19				1.41				1.11			
WPN_08	0.21				1.22				0.95			
WPN_09	0.18				0.96				0.94			
WPN_10	0.18				1.06				0.88			
WPN_11	0.18				1.11				0.98			
TDM_01	0.09				1.0				1.21			
TDM_02	0.09				0.96				1.13			
TDM_03	0.08				0.92				1.12			
TDM_04	0.1				1.03				1.15			
TDM_05	0.11				1.15				1.35			
BDY_01	0.08				0.89				1.21			
BDY_02	0.07				0.76				1.13			
BDY_03	0.07				0.79				1.12			
BDY_04	0.07				0.75				1.15			
BDY_05	0.07				0.72				1.35			

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Colour differences: just noticeable colour thresholds, see Richter (1985/87)

Colour series number	Colour difference ISO 11644-4 (CIELAB)				Colour difference LABJND 1985				Colour difference LABJND 1987			
	ΔL^*	Δa^*	Δb^*	ΔE^*_{ab}	ΔT^*_L	ΔT^*_a	ΔT^*_b	ΔE^*_{ab}	ΔT^*_L	ΔT^*_a	ΔT^*_b	ΔE^*_{ab}
WPN_01	0.28	1.12	1.74	0.28	0.9978	0.7992	0.1657		0.362	0.1141	0.0769	
WPN_02	0.19	0.89	1.15	0.19	0.9148	1.5233	1.7302		0.3348	0.1848	0.0717	
WPN_03	0.14	0.75	1.01	0.14	0.8313	1.3836	1.6628		0.3091	0.1936	0.0784	
WPN_04	0.12	0.71	0.94	0.12	0.834	0.8104	0.856		0.0	0.0003	0.0001	
WPN_05	0.15	0.62	1.07	0.15	1.1379	0.0281	0.3006		0.4276	0.2118	0.1011	
WPN_06	0.14	0.65	1.3	0.14	1.1326	0.5935	1.268		0.4169	0.2269	0.118	
WPN_07	0.19	0.67	0.96	0.19	1.4129	1.598	2.2164		0.5131	0.2251	0.1011	
WPN_08	0.21	0.83	1.12	0.21	1.2282	1.2935	1.9264		0.4327	0.2288	0.0988	
WPN_09	0.18	0.81	0.56	0.22	0.9683	0.9737	1.3324		0.3352	0.2162	0.0956	
WPN_10	0.18	0.7	0.41	0.36	1.0672	0.7837	0.8257		0.3654	0.0951	0.0357	
WPN_11	0.18	0.59	0.37	0.52	1.1119	0.5649	0.6309		0.3788	0.037	0.0147	
TDM_01	0.09	3.6	0.51	0.09	1.0096	44.9684	424.6181		0.2559	0.248	0.1042	
TDM_02	0.09	1.69	0.45	0.09	0.969	24.3971	111.5496		0.2458	0.2757	0.0869	
TDM_03	0.08	0.79	0.48	0.08	0.9288	1.2809	1.411		0.2358	0.0003	0.0001	
TDM_04	0.1	1.1	0.62	0.1	1.038	58.0119	927.9982		0.2636	0.184	0.1253	
TDM_05	0.11	1.1	0.73	0.11	1.155	65.7777	738.672		0.2935	0.1709	0.1514	
BDY_01	0.08	0.94	0.35	0.08	0.8935	5.7657	45.6462		0.227	0.2477	0.0759	
BDY_02	0.07	0.8	0.42	0.07	0.7673	2.7924	22.4532		0.195	0.2242	0.083	
BDY_03	0.07	0.7	0.45	0.07	0.7994	0.9407	0.173		0.203	0.1099	0.08	
BDY_04	0.07	0.86	1.22	0.07	0.7503	5.0373	41.7202		0.0634	0.2339	0.0767	
BDY_05	0.07	0.93	5.83	0.07	0.7244	6.6512	52.8393		0.1839	0.2465	0.0841	

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input: w/rgb/cmyk -> w/rgb/cmyk-
output: no change