

Complementary optimal colours: Relation XYZ and chromatic values A, B

nonlinear color terms	name and relationship with tristimulus values XYZ, and the chromatic values (A, B)	notes
Threshold space <i>ABY-JND1</i> equation (1)	$\Delta E^*_{ABY} = Y_0 \{ [a_0 \Delta A_{01}]^2 + [b_0 \Delta B_{01}]^2 + [\Delta Y_{01}]^2 \}^{1/2}$ $= Y_0 \{ [c_0 \Delta C_{ab,01}]^2 + [\Delta Y_{01}]^2 \}^{1/2}$	$A = (a - a_n) \cdot Y$ $= (x/y - x_n/y_n) \cdot Y$ Normalization similar to CIELAB: $X_{01} = X/X_n; Y_{01} = Y/Y_n;$ $Z_{01} = Z/Z_n$
Threshold space <i>ABY-JND4</i> equation (4)	$\Delta E^*_{ABY} = Y_0 \{ [a_0 \Delta A_{01}/Y_{01}]^2 + [b_0 \Delta B_{01}/Y_{01}]^2 + [\Delta Y_{01}/Y_{01}]^2 \}^{1/2}$ $= Y_0 \{ [c_0 \Delta C_{ab,01}/Y_{01}]^2 + [\Delta Y_{01}/Y_{01}]^2 \}^{1/2}$	Relation for complementary (c) colours: $X_{01c} = 1 - X_{01}; Y_{01c} = 1 - Y_{01}$ $Z_{01c} = 1 - Z_{01}$
Threshold space <i>ABY-JND5</i> equation (5)	$\Delta E^*_{ABY} = Y_0 \{ [a_0 \Delta a_{01} \cdot Y_{01}]^2 + [b_0 \Delta b_{01} \cdot Y_{01}]^2 + [\Delta Y_{01}]^2 \}^{1/2} / (c + d \cdot Y_{01})$ $= Y_0 \{ [c_0 \Delta c_{ab,01} \cdot Y_{01}]^2 + [\Delta Y_{01}]^2 \}^{1/2} / (c + d \cdot Y_{01})$	Chromatic values: $A_{01} = (a_{01} - a_{01n}) \cdot Y_{01}$ $= (x_{01} / y_{01} - 1) \cdot Y_{01}$ $= (X_{01} / Y_{01} - 1) \cdot Y_{01}$ $= X_{01} - Y_{01} = -A_{01c}$
Properties complementary colours	$a_{01c} = -a_{01}; b_{01c} = -b_{01}; C_{ab,01c} = C_{ab,01};$ $\Delta a_{01c} = \Delta a_{01}; \Delta b_{01c} = \Delta b_{01}; \Delta C_{ab,01c} = \Delta C_{ab,01};$	$c = 0,017; d = 0,580$