

ISO 13655:2017-07 (E)

Graphic technology - Spectral measurement and colorimetric computation for graphic arts images

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Spectral measurement requirements	4
4.1	Instrument standardization and adjustment	4
4.2	Reflectance factor measurement	4
4.2.1	Wavelength range, wavelength interval and bandwidth	4
4.2.2	Illumination requirements and measurement conditions	5
4.2.3	Sample backing material	7
4.2.4	Measurement geometry	7
4.2.5	Data reporting	7
4.3	Transmittance factor measurement	8
4.3.1	Wavelength range, wavelength interval and bandwidth	8
4.3.2	Measurement geometry	8
4.3.3	Illumination requirements and measurement conditions	8
4.3.4	Resolution and data reporting	8
4.4	Self-luminous displays (spectral radiance) measurement	9
4.4.1	Wavelength range, wavelength interval and bandwidth	9
4.4.2	Measurement geometry	9
4.4.3	Polarization	9
4.4.4	Resolution and data reporting	10
5	Colorimetric computation requirements	10
5.1	Calculation of tristimulus values for reflecting and transmitting samples	10
5.1.1	General	10
5.1.2	Calculations with data having 5 nm interval and bandwidth	11
5.1.3	Calculations with data having 10 nm interval and bandwidth	11
5.1.4	Calculations with data having other intervals and bandwidth	11
5.2	Calculation of tristimulus values for self-luminous displays	11
5.3	CIE 1976 (L*a*b*) colour space; CIELAB colour space	13
5.3.1	General	13
5.3.2	CIELAB colour space formulae	13
5.3.3	CIE 1976 colour difference formulae	14
5.3.4	CIEDE2000 colour difference formulae	14
6	Measurement data reporting requirements	15
6.1	Required information	15
6.2	Recommended information	15
6.3	Electronic data reporting	15
Annex A (normative)	Sample backing	16
Annex B (informative)	Geometry	21

Annex C (informative) Improving inter-instrument agreement	24
Annex D (informative) Certified reference materials (CRMs)	26
Annex E (informative) Procedures for widening the bandwidth	28
Annex F (informative) Fluorescent specimens	30
Annex G (normative) Test method for UV-cut conformance	32
Annex H (informative) Special cases: Use of polarization	34
Annex I (informative) Example computations for converting spectral measurements to tristimulus values	35
Annex J (normative) Computation of the CIE LAB total colour difference (E^*_{ab})	41
Annex K (normative) Computation of the CIE DE2000 total colour difference (E_{00})	42
Annex L (informative) Impact of measurement band pass on spectral quantities	46
Bibliography	48