

ISO 20351:2017-09 (E)

Fine ceramics (advanced ceramics, advanced technical ceramics) - Absolute measurement of internal quantum efficiency of phosphors for white light emitting diodes using an integrating sphere

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Measuring equipment	2
4.1	Equipment configuration	2
4.2	Light source unit	3
4.3	Sample unit	3
4.3.1	Cell	3
4.3.2	White diffuser or reference cell	4
4.3.3	Integrating sphere	4
4.4	Detecting unit	4
4.4.1	Directing optics	4
4.4.2	Spectrometer and detector	4
4.4.3	Amplifier	4
4.5	Signal and data processing unit	4
5	Calibration, checking and maintenance of measuring equipment	5
5.1	General	5
5.2	Wavelength calibration of light source unit	5
5.3	Cells and cover glasses	5
5.4	Integrating sphere walls and white diffusers	5
5.5	Wavelength calibration of detecting unit	5
5.6	Spectral responsivity correction	5
6	Samples	5
6.1	Storage and pre-processing	5
6.2	Filling cells with samples	5
7	Measurement methods	6
7.1	Measurement environment	6
7.2	Light spectrum without phosphor sample	6
7.3	Light spectrum with phosphor sample	6
8	Calculations	6
8.1	Conversion to photon-number-based spectra	6
8.2	Photoluminescence spectrum	7
8.2.1	General	7
8.2.2	Method 1	7
8.2.3	Method 2	7
8.3	Internal quantum efficiency	7
8.3.1	Relative number of absorbed photons	7
8.3.2	Relative number of photoluminescent photons	8

8.3.3	Internal quantum efficiency	8
9	Report	8
	Bibliography	10