

ISO 13915:2023-08 (E)

Fine ceramics (advanced ceramics, advanced technical ceramics) - Test method for optical properties of ceramic phosphors for white light-emitting diodes with reference materials

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Measurement apparatus	2
4.1	Apparatus configuration	2
4.2	Light source unit	4
4.3	Sample unit	4
4.3.1	Cell	4
4.3.2	Sample compartment and cell holder	5
4.4	Detection unit	5
4.4.1	Directing optical system	5
4.4.2	Spectrometer and detector	5
4.4.3	Amplifier	5
4.5	Signal and data processing unit	5
5	Calibration, inspection and maintenance of measurement apparatus	5
5.1	General	5
5.2	Wavelength calibration of light source unit	6
5.3	Cells	6
5.4	Wavelength calibration of detection unit	6
5.5	Spectral responsivity calibration	6
6	Samples	6
6.1	Reference material	6
6.2	Storage and pre-processing	6
6.3	Filling cells with phosphor powders	7
7	Measurement procedures	7
7.1	Measurement environment	7
7.2	Spectrometer setup for substitution measurement	7
7.3	Measurement for reference material	7
7.4	Measurement for phosphor material under test	7
8	Calculation	8
8.1	Spectral responsivity correction	8
8.2	Conversion to photon number-based spectral distribution	8
8.3	Calculation of scattered light and fluorescence photon numbers	8
8.4	External quantum efficiency	10
8.5	Absorptance	10
8.6	Internal quantum efficiency	10
9	Test report	10

Annex A (informative) Wavelength correction of monochromators by using phosphor material with specific fluorescence peaks	12
Annex B (informative) Correction method for chromaticity coordinates of ceramic phosphors for white light-emitting diodes with reference materials	14
Annex C (informative) Guide to application of relevant ISO documents concerning test methods for optical properties of ceramic phosphors for white LEDs	15