SIGMA Co., Ltd.

System Specifications

Organic EL luminescence characteristic measurement system

Outline

Organic EL luminescence characteristic measurement system consists of a dark box, a luminance meter, a multichannel spectroscope, a power supply, and analysis software.

This system measures the current-luminosity characteristic, the voltage-luminosity characteristic, the voltage-current characteristic, luminescence efficiency, external quantum efficiency, energy transduce efficiency and a spectrum, and the various luminescence characteristics of an element automatically by controlling drive voltage and drive current.

Luminescence efficiency is measured from the front luminosity measured with a luminance meter and the spectrum measured with a multichannel spectroscope.

Feature

User-specified items are measured automatically.
Quantum efficiency of a luminescence element is measured for every current density.
Possible drive current step sweep range is from 100 μA to 200mA .
Spectrum of a sample is measured by a multichannel spectroscope.
The chromaticity diagram is calculated from a spectrum.
Users can measure the light divergence angle distribution by rotating the sample base.(option)

Measurement item

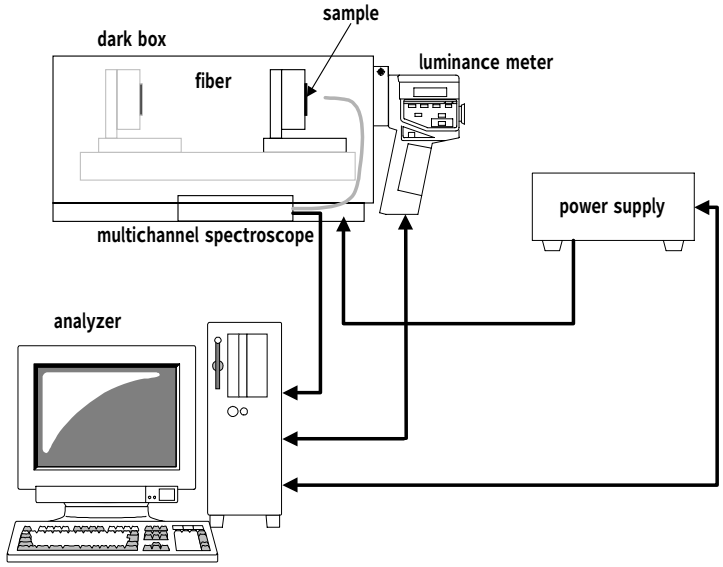
① current density (mA/cm^2) – luminance (cd/m^2) characteristic
The change of luminosity to current density is measured.
② current density - luminescence efficiency (cd/A)
The change of luminescence efficiency to current density is measured.
③ current density – external quantum efficiency (photons/electrons)(Np/e-) characteristic
Quantum efficiency is measured by current density–luminance characteristic and spectral data.
④ current density – energy transduce efficiency (lm/W) characteristic
The change of energy transduce efficiency to current density is measured.
⑤ voltage - current density characteristic
The change of current to voltage is measured.
⑥ voltage – luminance characteristic
The change of luminosity to voltage is measured.

⑦ spectral distribution
Spectral distribution is measured by a multichannel spectroscope.
⑧ chromaticity diagram
Chromaticity is measured from spectrum data and display on a diagram.
⑨ luminance - time characteristic
Time change of luminosity is measured

Specification

1) dark box for measurement	
・detector size	：20-100mm□
・sample stage	：X,Y, θaxis slight movement is possible
・sample stage	：Z axis movement (adjust measurement of view)
2) luminance meter	
・pixel size	：φ1.1-φ1.5 (close up lensNO.122used)
	：φ0.5-φ0.4 (close up lensNO.110used)
・measurement angle	：0.3°
・luminance measurement range	
FAST	：0.01-999900cd/m^2
SLOW	：0.01-499900cd/m^2
・measurement accuracy	：±2%±1digit (10cd/ m^2)
3) multichannel spectroscope	
・detector	：CCD array
・wavelength range	：380-780nm
・wavelength resolution	：2nm
・input optics	：Optical fiber
4) Current / voltage generator	
・Drive current/ setup resolution	：0～200.0mA/1 μA
・Drive voltage/ setup resolution	：0～20.00V/10mV
5) Data analyzer	
・control	：parameter setup, peripheral control
・indication	：
・save the data	：time 、parameter、data save、write to file

System composition



* Specification and a performance may be changed without a preliminary announcement for improvement.

About this system, please contact us.

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