

July 30, 2015

**Mitsubishi Chemical, Pioneer Develop Bluelight-less OLED Lighting Module  
— Sample Shipments Start August 1 —**

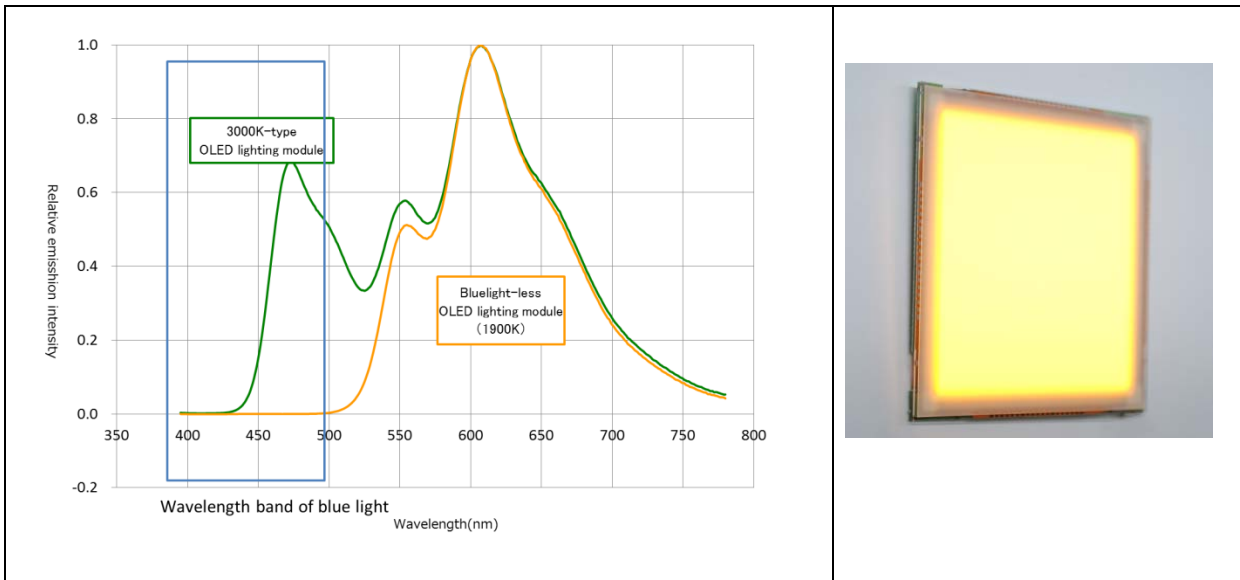
Mitsubishi Chemical Corporation  
Pioneer Corporation

Mitsubishi Chemical Corporation (MCC; Head office: Chiyoda-ku, Tokyo; President: Hiroaki Ishizuka) and Pioneer Corporation (Pioneer; Head Office: Kawasaki-shi, Kanagawa; President: Susumu Kotani) today announced that MCC and Pioneer have successfully developed the first bluelight-less OLED lighting module made with a wet coating process for the light-emitting layer, and will begin shipping samples on August 1.

Blue light (Wavelength: 380-495 nanometers) is contained in both natural light and artificial light sources. It has the highest energy among visible light, enough to reach the retina at almost full strength. For this, it can cause eye fatigue, and receiving large amounts of blue light before bedtime can restrain the secretion of a hormone that controls sleep, which results reducing sleep quality, such as making it difficult for people to fall asleep and preventing deep sleep. In recent years, the usage time of personal computers and smartphones, which adopt more blue light source, is becoming longer. It calls for attention that people are exposed to blue light for long time.

The newly developed bluelight-less OLED lighting module does not use blue emitting materials in the OLED panel and the light from the panel contains a minimal portion of blue light (less than 1%<sup>\*2</sup> of the amount in the 3000K-type OLED lighting module developed by MCC and Pioneer). The panel is a candle-color type module with a 1900K color temperature, which is suitable for storage lighting of light-sensitive items such as cultural heritage and paintings, as well for illumination of bedrooms and medical practices.

MCC and Pioneer started shipments of OLED lighting modules in 2012, and in 2014, started mass production of the OLED lighting module using a wet coating process for the light-emitting layer, which significantly reduces manufacturing costs. The addition of the bluelight-less OLED lighting module – which is surface-emitting, thin and lightweight – opens up a wide range of potential applications.



**Comparison of light emitting spectacle**

**Bluelight-less  
OLED lighting module**

MCC and Pioneer’s joint company, MC Pioneer OLED Lighting Corporation (MPOL; Head office: Shinjuku-ku, Tokyo; President: Satoshi Muroyama) sells samples of the bluelight-less OLED lighting modules.

**Performance indication**

Product name		Bluelight-less OLED lighting module produced with a wet coating process
Model No.		OLE-P0909-C3S
Type		Module with integrated type (constant current circuit)
Max. luminance (cd/m <sup>2</sup> ) *3		3,000
Color temperature (K) *4		1,900 (candle color)
Size (mm)	External dimensions	92.4 × 92.4
	Light-emitting area	≥76 × 76
	Thickness	4.3
Weight (g)		42

\*1. Pioneer survey of July 30, 2015

\*2. Pioneer survey

\*3. Luminance: Brightness of a light emitter per unit area; stated in candela per square meter (cd/m<sup>2</sup>).

\*4. Color temperature: A scale for expressing colors of light with quantitative value; stated in Kelvin (K) thermodynamic temperature

\* The values indicated above are for reference and do not guarantee the product’s performance.