

Application Note

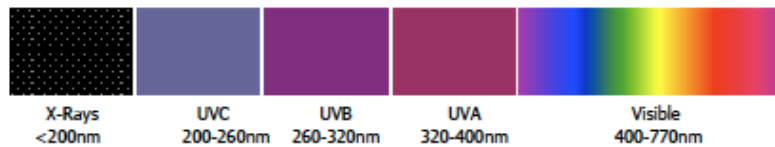
## UV Emission – OptoElectronix’s Products

### Introduction

There are some concerns that LED lights emits UV radiation that might adversely affect health or specific processes. While White LEDs using a UV/Phosphor conversion process could have UV emission, those using a Blue/Phosphor conversion are not likely to have UV emission.

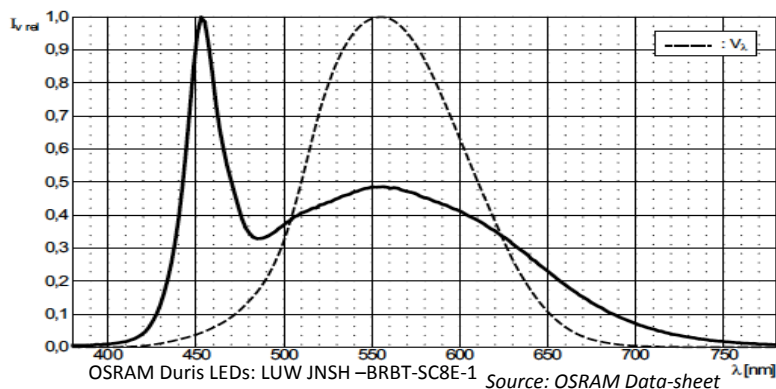
OptoElectronix uses LEDs with the Blue/Phosphor conversion sourced from reputable suppliers with traceable performance.

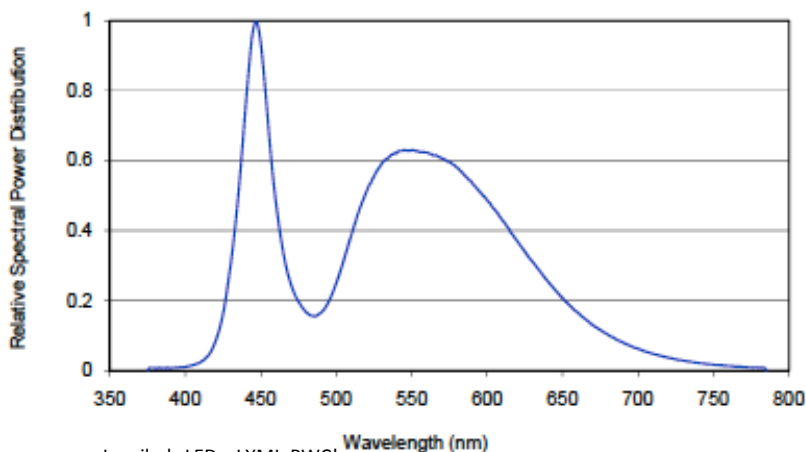
UV spectrum is defined as wavelengths below 400nm.



### Spectrum Distribution of LEDs used

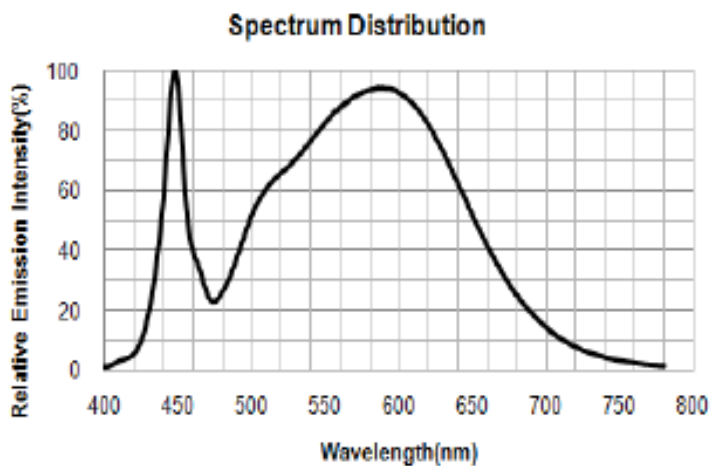
Below are the distribution of the LEDs typically used in OptoElectronix’s products.





Lumileds LEDs: LXML-PWC!

Source: Lumileds Data-sheet






Samsung LEDs: SPMWHT221MD5WATM50

Source: Samsung Data-sheet

As depicted in the above data the white LEDs peaks at around 450nm and 550nm in the non-UV visible spectrum.

Lumileds have thoroughly tested their LEDs and have generated Photo Biological Reports on some of their LEDs. Below is an extract from the report on the Luxeon 3535 Series which is widely used by OptoElectronix for example in the ULF24000 Series.

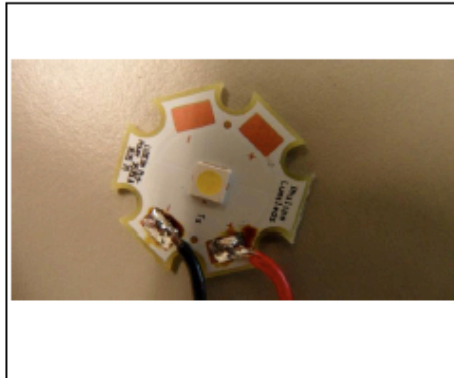
Full report is available upon request.

|   |   |  |
|---|---|--|
|    | <b>Philips Electronics Nederland B.V.</b><br>Optical Calibrations and Measurements<br>Spectroradiometry<br>Mathildelaan 1, 6811 BD Eindhoven<br>Tel: +31 615900698 E-mail: h.stel@philips.com | Report nr : JM10310<br>Date of report : 04-Nov-2013<br>Testfacility : EEA-622<br>Operator : J.Marinus<br>Responsible : H.H.Stel<br>Meas type : PhotoBiological |
|---|---|--|

**Photobiological safety evaluation report according to IEC 62471**


|   |   |
|---|---|
| Customer : Philips Lumileds Lighting Co LLC<br>Address : 370 West Trimble Road San Jose, CA 95131, USA<br>Organization : Lumileds<br>Invoice Id : | <b>Measuring Conditions</b><br>Spectral Range (nm) : 200-1800<br>Date Of Meas : 13-May-2013<br>Burning position : Horizontal<br>Meas.dist. Irradiance [mW] : 200<br>Meas.dist. Radiance [mW] : 200<br>Ambient temperature [°C] : 25.3 |
|---|---|

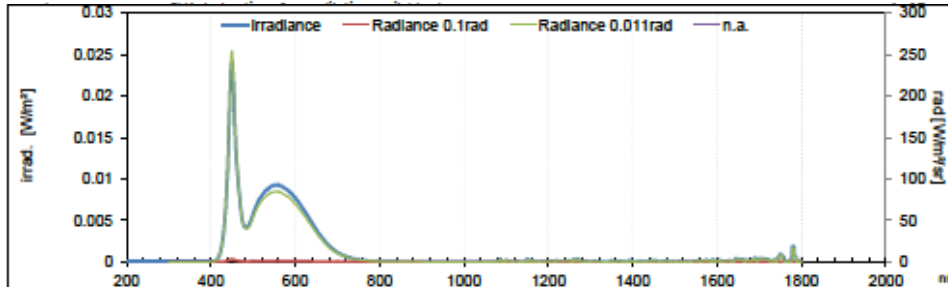
|                    |  |
|--------------------|--|
| <b>Lamp Data</b>   |  |
| Lamp type          | : LUXEON 3333L                         |
| Lamp nr            | : MXA8-PW63                            |
| Life time (h)      | : 0                                    |
| Gear               | :                                      |
| Description        | : PHILIPS Lumileds Lighting Company BV |
| Reporting distance | : 200 mm (at 386 lx)                   |



|  |          |
|--|----------|
| <b>Risk Categories Found (at reporting distance)</b> |          |
| Hazards  |          |
| Actinic UV   | : Exempt |
| Near UV  | : Exempt |
| Retinal Blue SmallSrc                                | : Exempt |
| Retinal thermal                                      | : Exempt |
| Infrared Eye   | : Exempt |
| Thermal Skin   | : pass   |

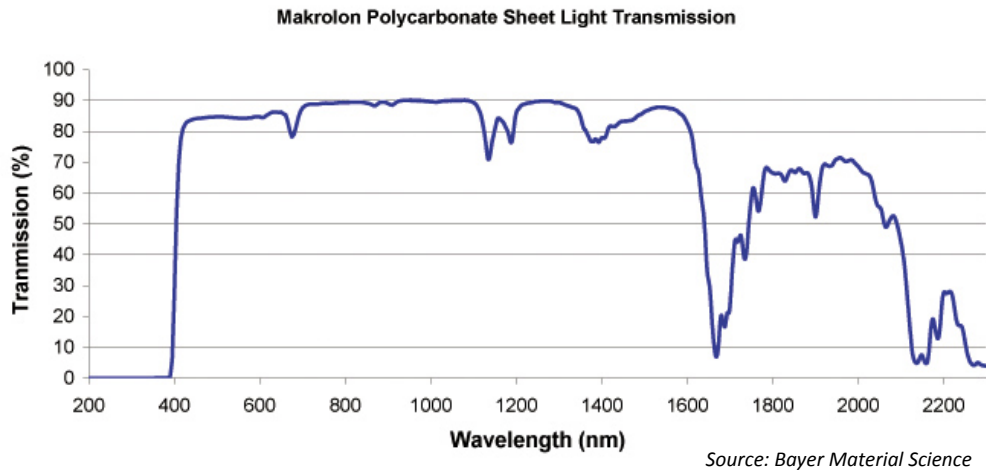
**Remarks** : LUXEON 3333L is part of LUXEON Midpower family. The sample measured, MXA8-PW63, is ANSI bin 6500K. The present classification is thus valid for all LUXEON 3333L from CCT bins equal or lower (e.g. MXA8-PW37), as well as worst case for LUXEON 3333 (smaller die) or LUXEON 3630 (smaller die and lower max current) of equal or lower CCT, as e.g. MXM7-PW63 or MXL8-PW63 (see TR IEC62778).

**Signed by** : H.H.Stel **Signature** :   
Head of Photobiological safety & Irradiance



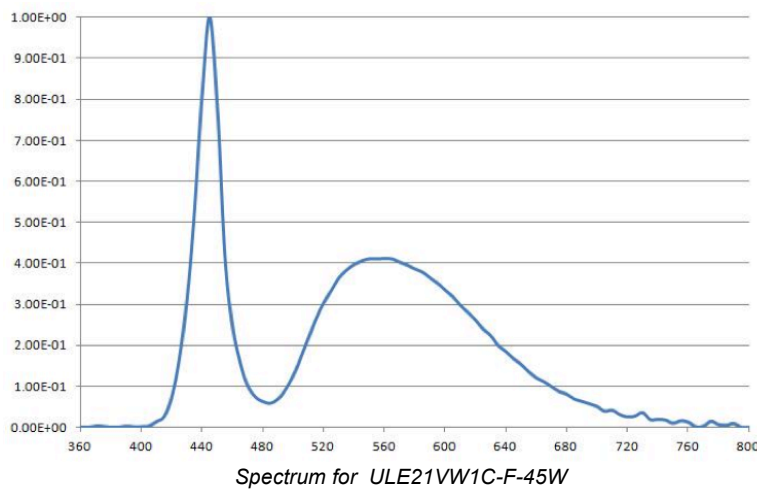
**UV Transmission of Plastic Lens/Cover**

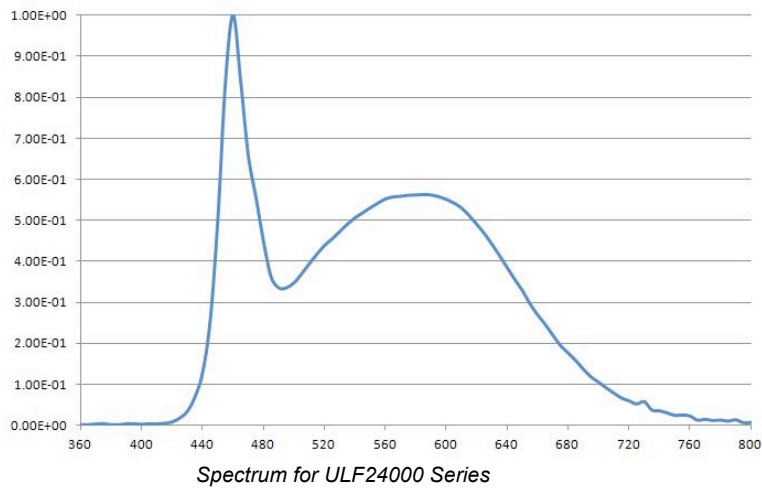
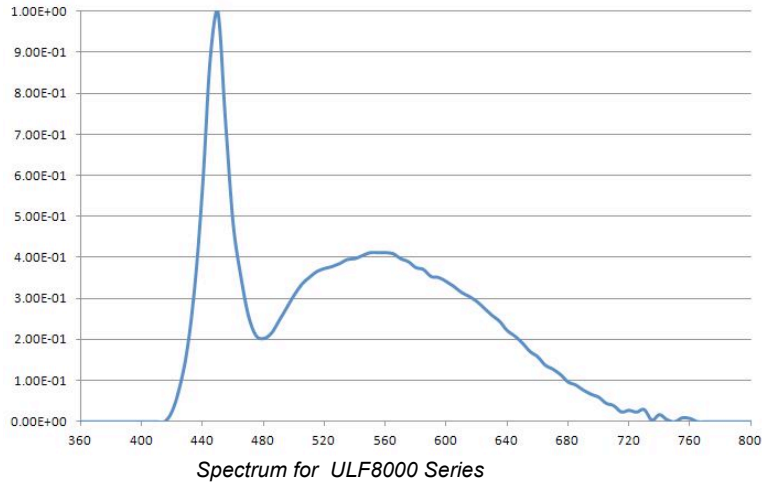
In almost all OptoElectronix’s products the LEDs are protected by a plastic lens or cover. Polycarbonate material is used for this. Polycarbonate itself inherently filters UV emission as documented in the chart below.



**In-house Verification**

To verify the emission level (or the lack of it) the following products were evaluated in Opto’s in-house optical lab.





**Summary**

Care have been taken to ensure products designed and manufactured by OptoElectronix does not have any discernable UV emission.

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*OAN1005Rev0 May 12, 2015*

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OptoElectronix is the leader in *The Art of LEDs* — the conception, design, and manufacture of cutting-edge, standard, highly efficient LED-based lighting.

[www.optoelectronix.com](http://www.optoelectronix.com)

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