TECH NOTE

LED COLOUR / BRIGHTNESS VARIATION & BINNING

IT IS IMPORTANT FOR TPL VISION'S CUSTOMERS TO UNDERSTAND THE BINNING PROCESS USED BY LED MANUFACTURERS.

The exact colour and brightness emitted by an LED varies from chip to chip, due to the extremely sensitive process of manufacturing an LED chip. Because of this, all LED Manufacturers **test the wavelength/colour** and **brightness characteristics** of every LED chip produced, using a special machine. This machine measures the LED's characteristics and puts them into one of several "bins". Each bin will contain LEDs within one tightly controlled brightness and wavelength group. All the LEDs look the same, but the characteristics of the illumination will vary slightly between each bin.

TPL Vision closely monitors the binning of the LEDs we purchase to ensure the quality and consistency of our products, and to ensure you don't experience variations in LED colour or brightness on any one product, or product batch (on one order):

- only two or three bins which are extremely close in characteristics are used within one product range,
- the bins used on any one product purchase order will always be the same.

It is important to note that if the illumination is a repeat order at different times, then the binning may be slightly different between the orders, so there could be **a small variation in colour or brightness** between these orders. Typically this variation will **not be visible to the vision camera**. The human eye is very sensitive to colour variations (particularly in some wavelength ranges), so it is possible that you could see a small difference in colour, but it is very unlikely to affect the performance of a vision system.

Please note that TPL Vision products cannot be rejected for variations in binning, so if your application requires a particularly tight control on wavelength and/or brightness, especially compared to a previous project, please discuss this with your Sales Executive prior to ordering.

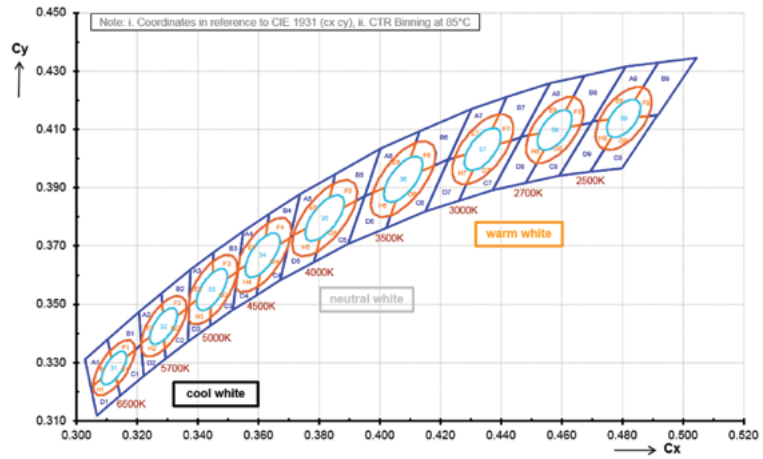

ILLUSTRATION OF A TYPICAL LED OUTPUT, SHOWING BINNING CODES

TPL VISION Active LED solutions
PHONE +44 (0)1738 310 392
EMAIL contact@tpl-vision.co.uk
www.tpl-vision.com