Format for the IVL data:
Column 1: data point number
Column 2: voltage [V]
Column 3: current [A]
Column 4: luminance [V]

Format for the Spectrum data:
Column 1: Wavelength [nm]
Column 2: Intensity [arb. units]

Your spectrum should look something like this:
The photodiode detection set-up was like this:

![Diagram of photodiode detection set-up]

- OLED
- 8 mm
- ~ 37° cone captured (~ 0.56 radians)
- Detector (R = 5mm)

Output intensity profile from OLED: \( I(\Theta) \sim \cos^2 \Theta \)

So, fraction of light captured (\( \alpha \)) is \(~0.6\)

To get quantum efficiency (\( \eta \)) from luminance voltage (L):

\[
\eta = \frac{(L - L_{background})[V]*1e-5[A/V]*R_d[W/A]*\lambda_{max}}{\alpha*1*1241}
\]

Where \( R_d \) is the responsivity of the detector in W/A:

\[
\begin{array}{c|c}
\lambda & R_d \\
\hline
405 & 6.0 \\
530 & 3.0 \\
630 & 2.5 \\
\end{array}
\]

Your I-L-V curves should ultimately look something like this:
Your photovoltaic device I-V characteristics should look something like this.

What are the CIE coordinates of the OLED?
To answer this question use the X, Y, Z photopic response curves in the Excel file “Calculation of CIE coordinates.xls”. Multiply the OLED spectrum with each of the X, Y, and Z curves, and add all the values in each column to obtain three numbers x, y, z, respectively. The (x’,y’ ) CIE coordinates are then given by \( x' = x / (x+y+z) \), \( y' = y / (x+y+z) \). Plot the (x’,y’ ) coordinates on the CIE plot as below. Your coordinates should match the color of the OLED.