

Characterization of White & Blue LEDs as emitter & detector.

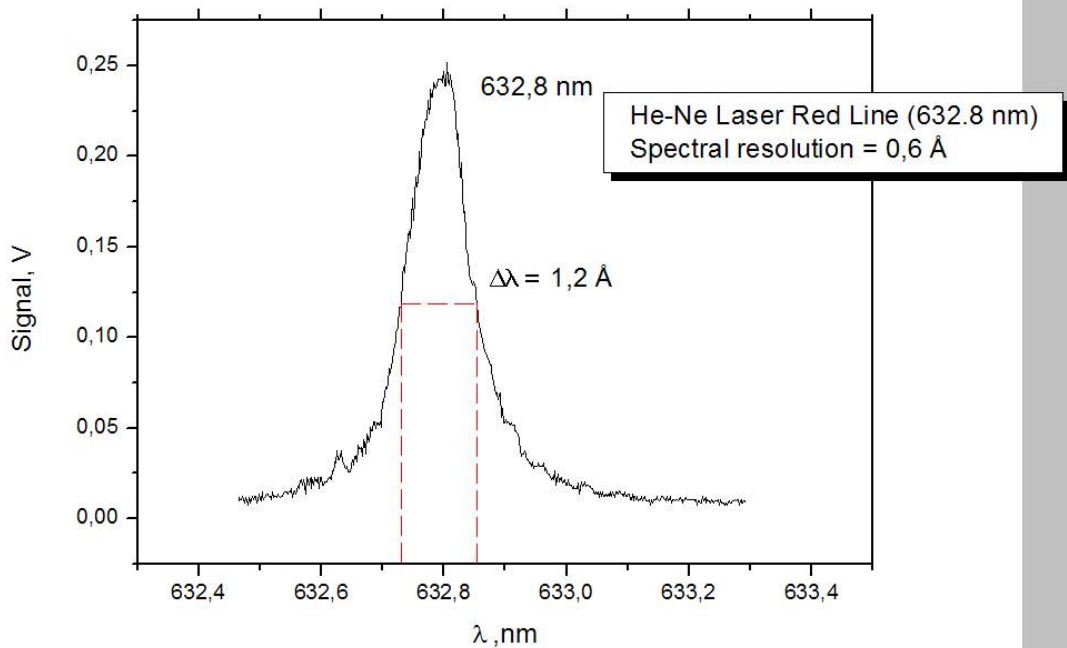
Realized by Alex Belokurov, Diego Etchepareborda, LETOL, Villa Golf, Bariloche

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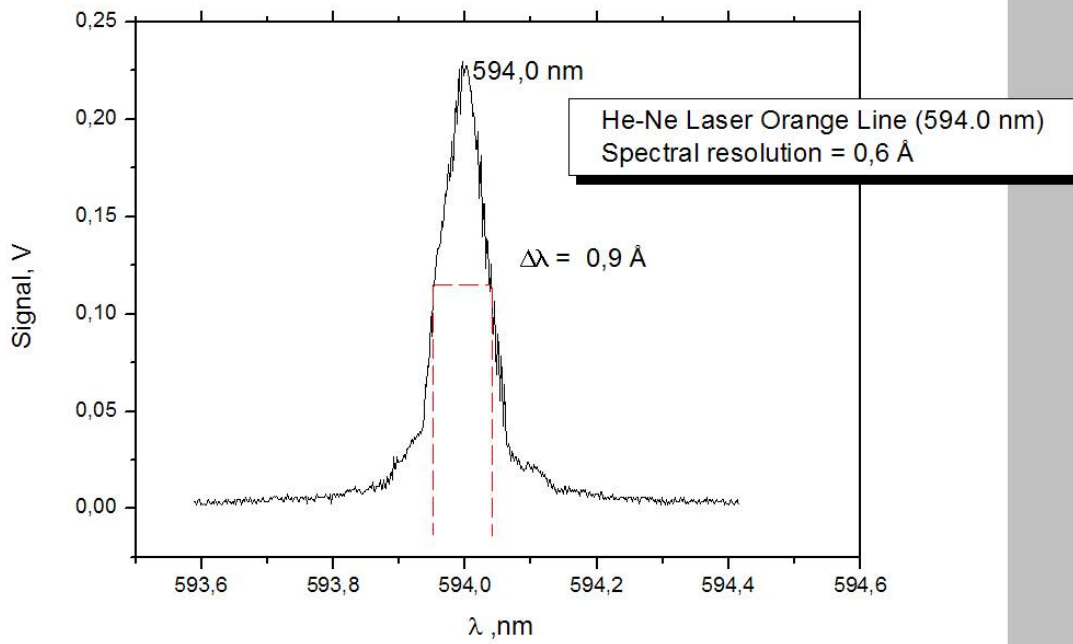
Experimental Set-Up

1

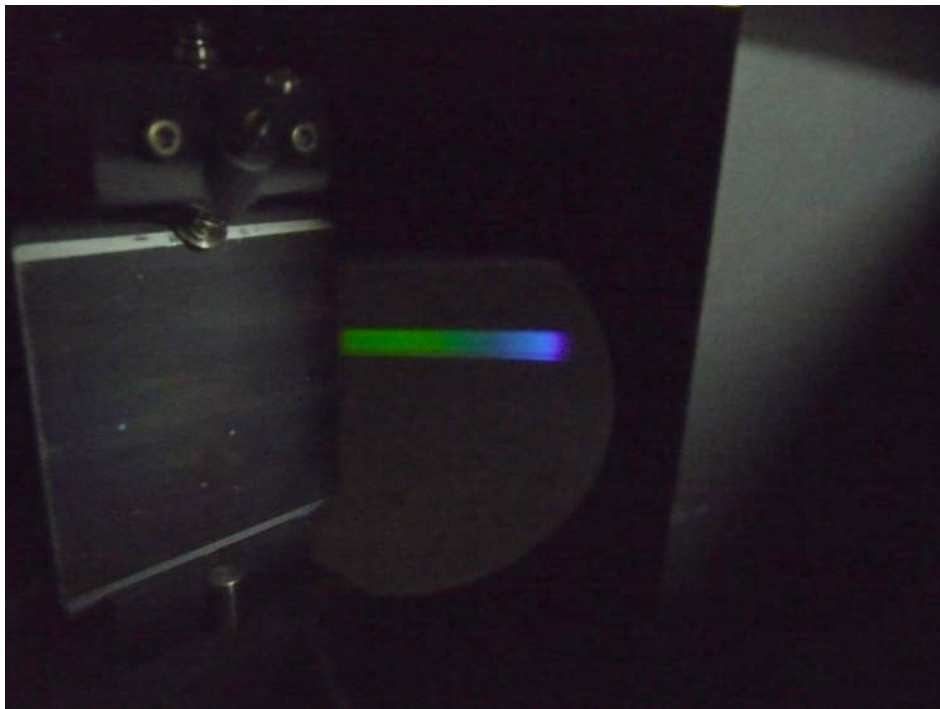


He-Ne Laser (632.8 nm) Calibration Curve

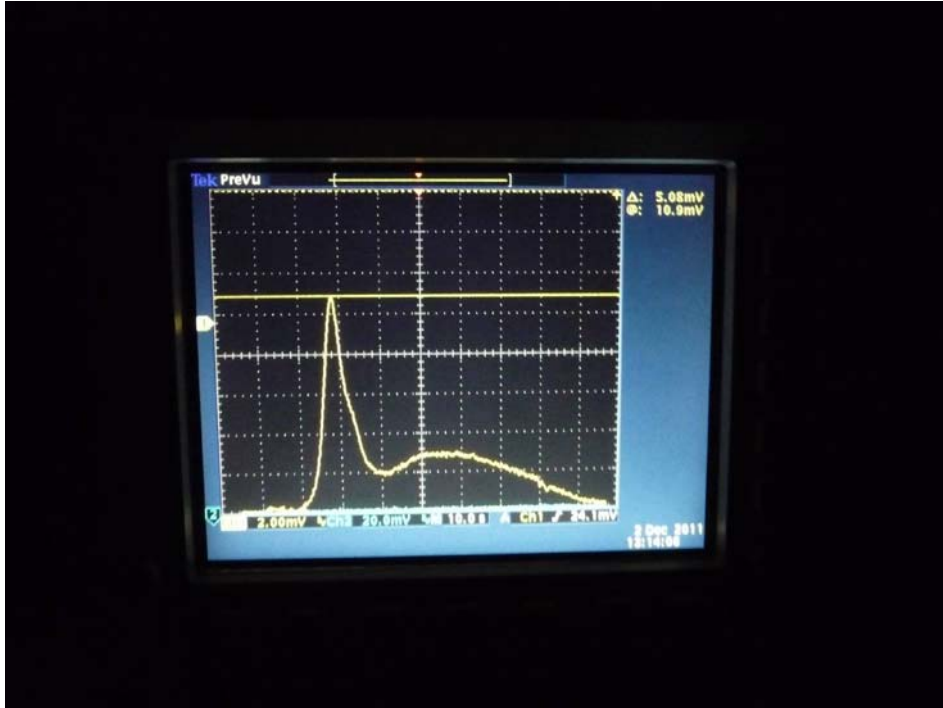
1



He-Ne Laser (594 nm) Calibration Curve



White LED Spectra



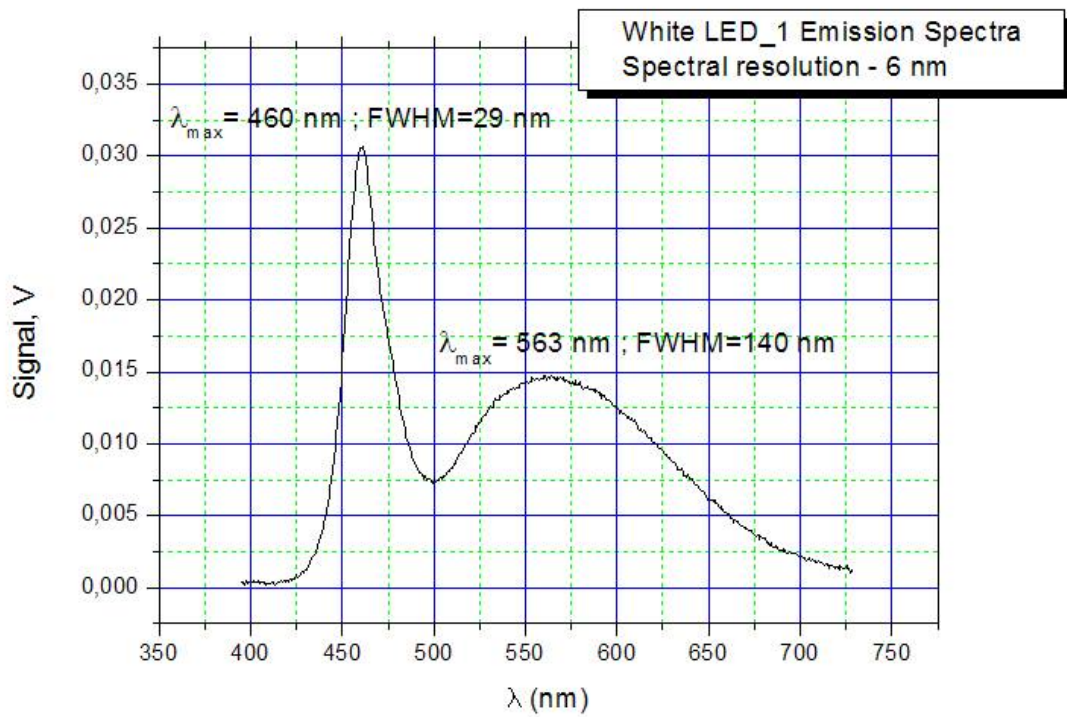
White LED vs. Si Photodiode (ET-2020 PIN) Response



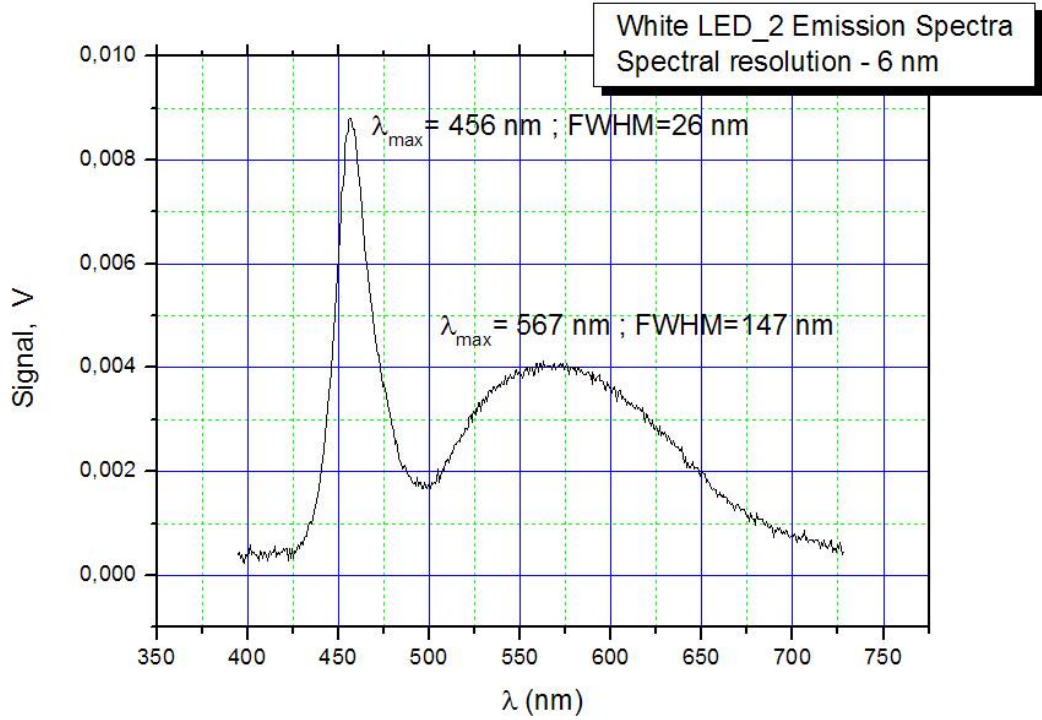
Blue LED Emission



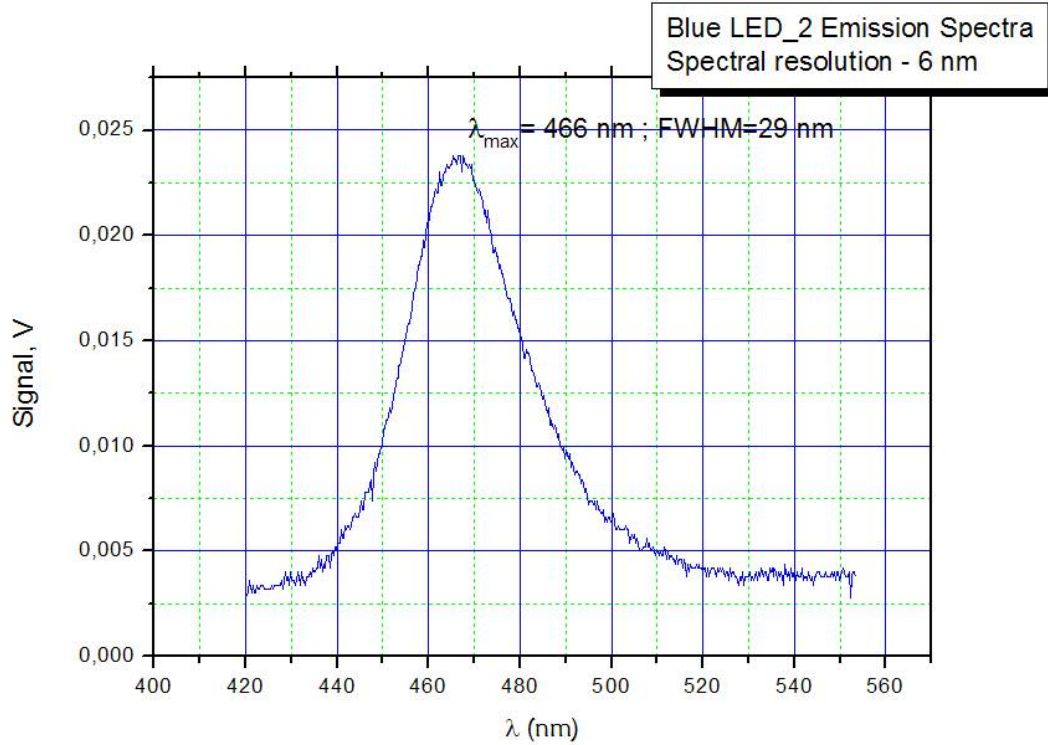
Blue LED Spectra



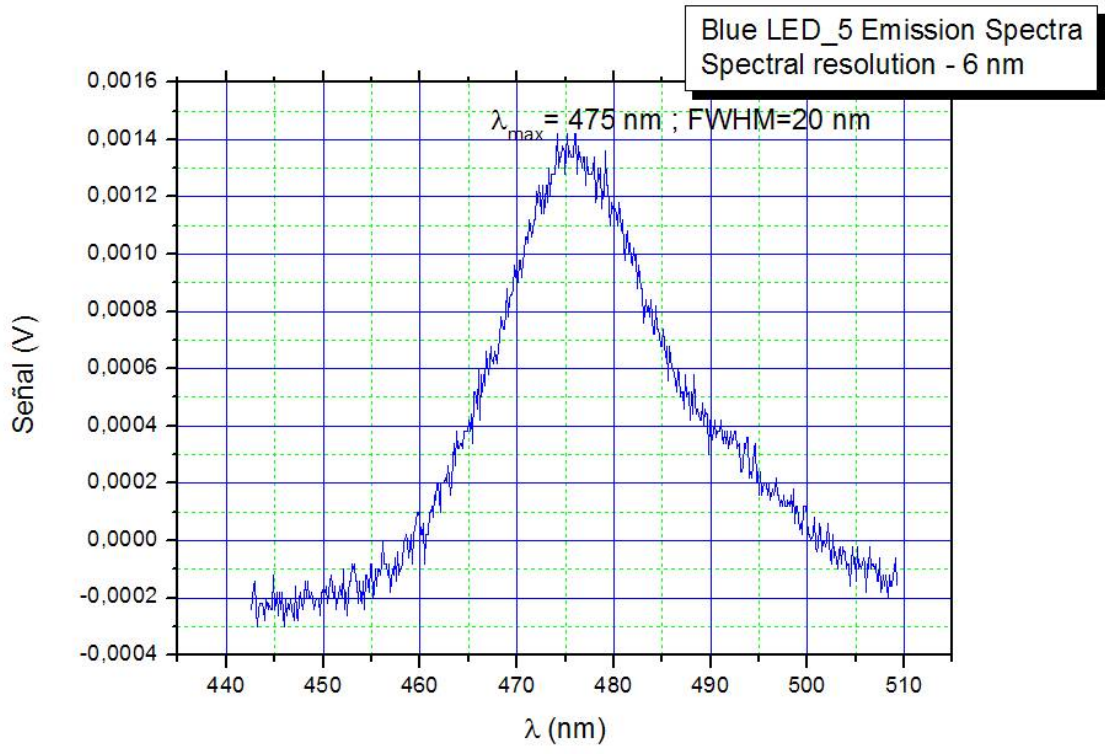
White LED_1 Emission Curve



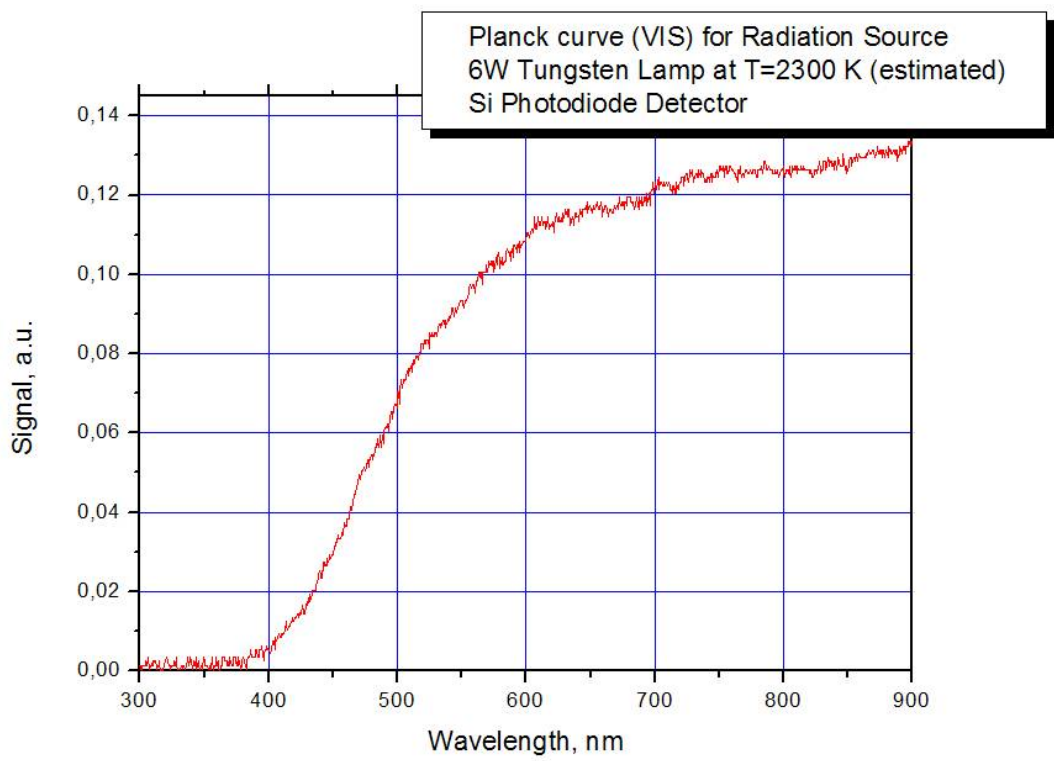
White LED_2 Emission Curve



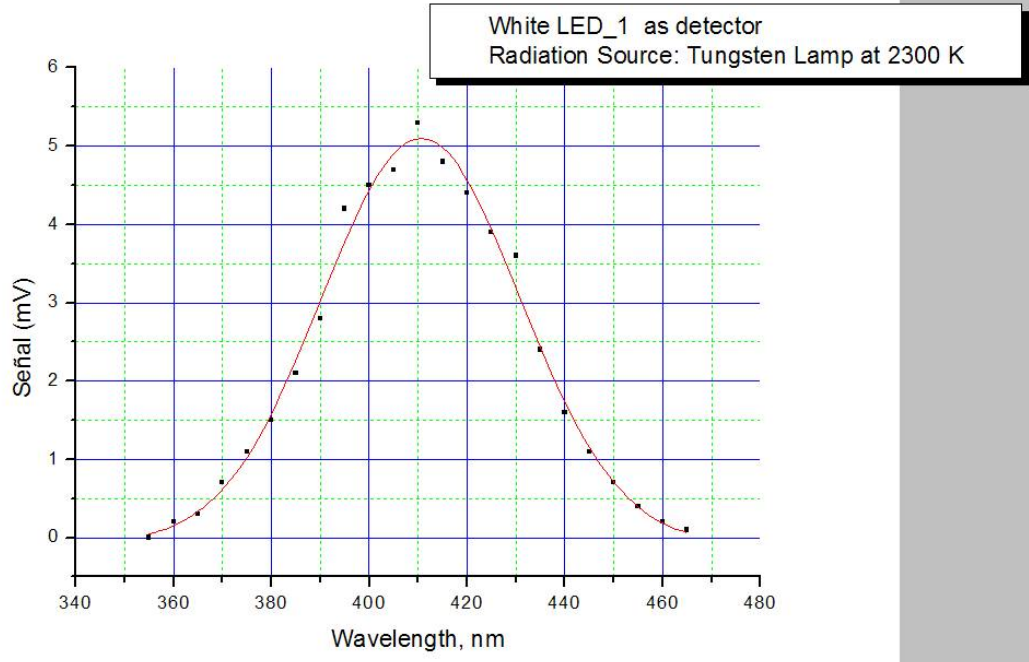
Blue LED_2 Emission Curve



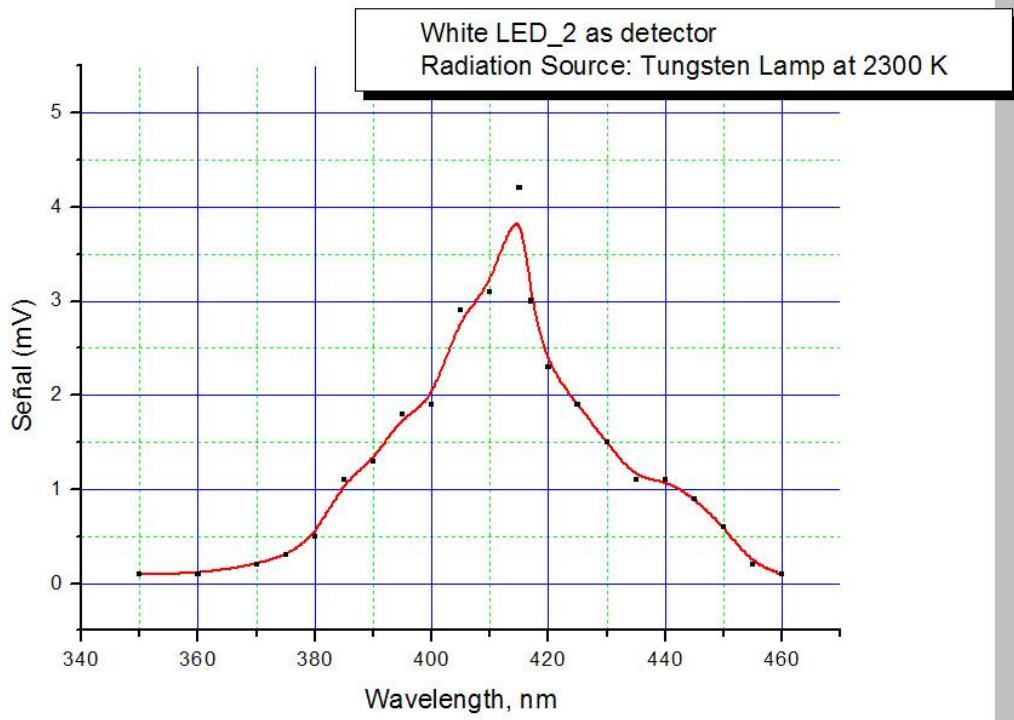
Blue LED_5 Emission Curve



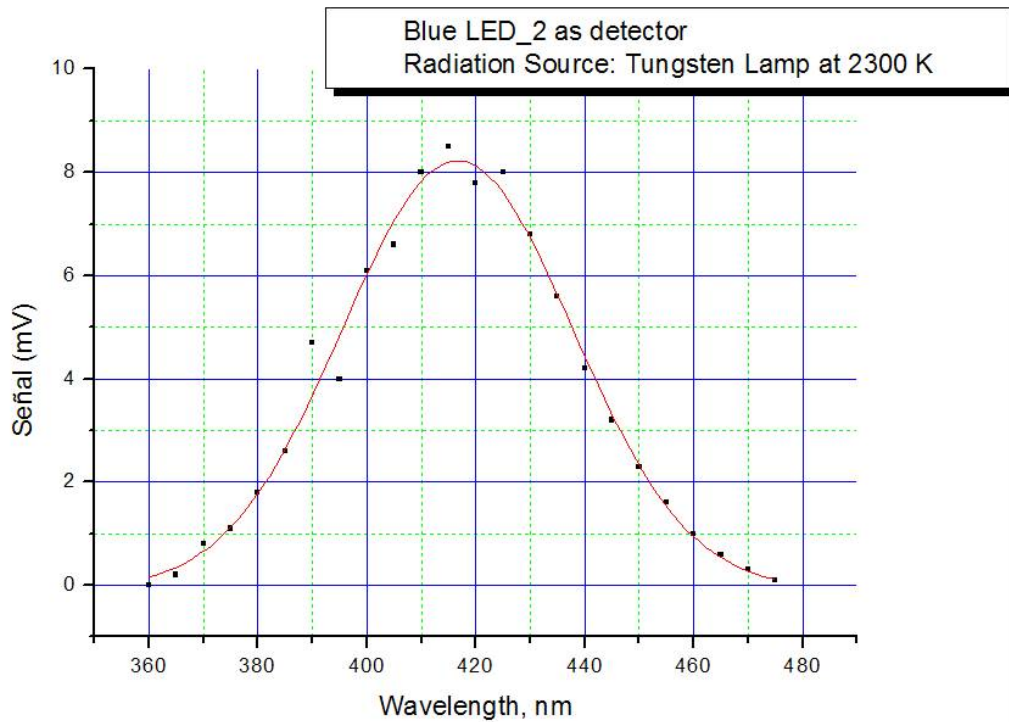
Tungsten Radiation Source Planck curve (VIS)



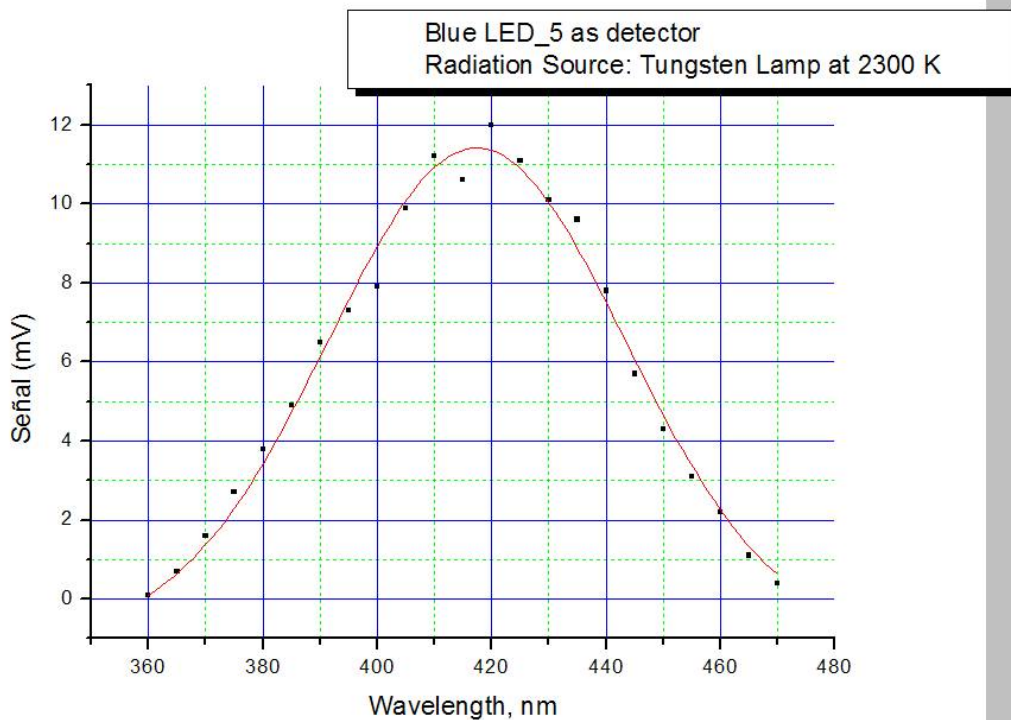
White LED_1 as Detector



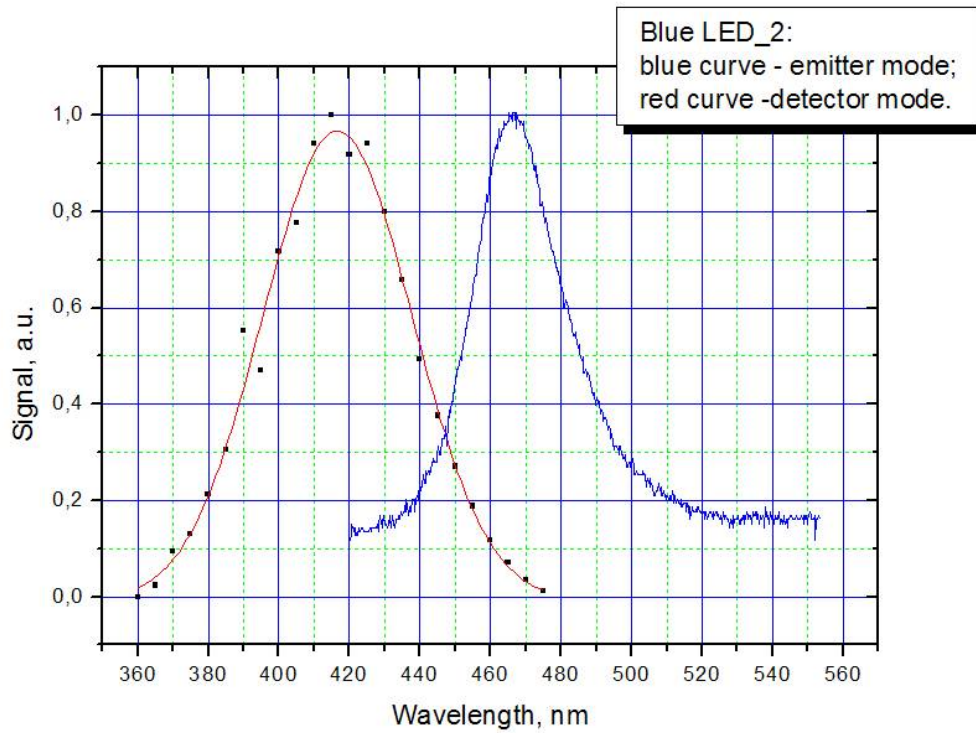
White LED_2 as Detector



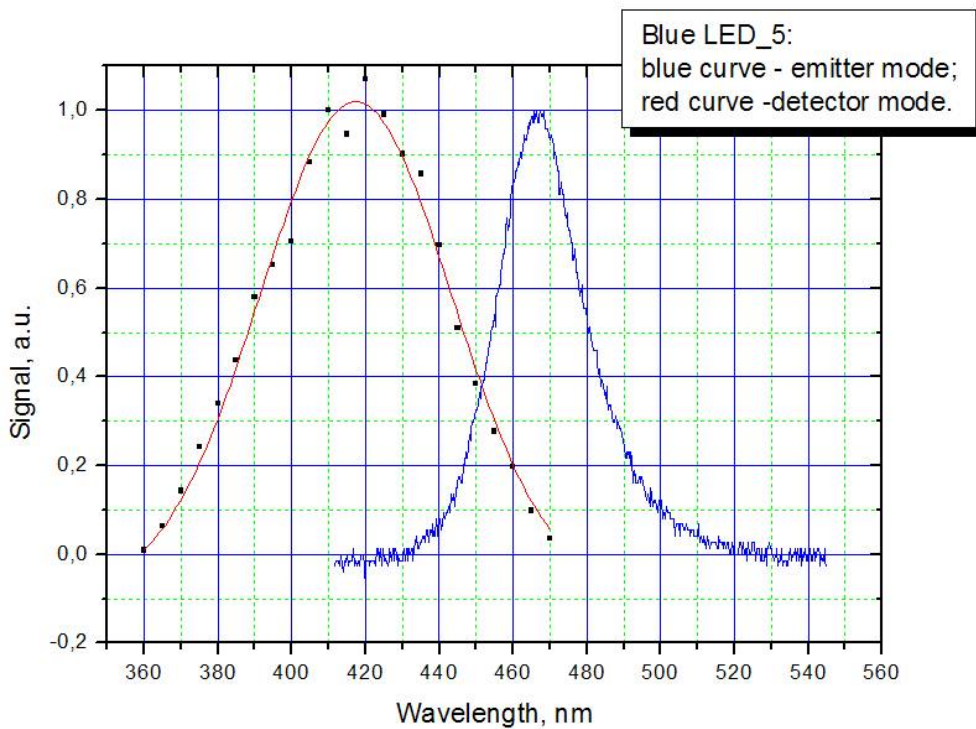
Blue LED_2 as Detector



Blue LED_5 as Detector



Blue LED_2 : Detector vs. Emitter mode



Blue LED_5 : Detector vs. Emitter mode

It is observed that for the white LEDs the main emission peak locates at $460 \text{ nm} \pm 6 \text{ nm}$ with a FWHM of 29 nm. Also there is observed a peak more wide that corresponds to the emission of the coated film of $\text{Ce}^{3+}:\text{YAG}$. The detection peak, nevertheless, locates in $411 \text{ nm} \pm 6 \text{ nm}$ with a FWHM of 48 nm. For the blue LEDs the emission peak locates in $466 \text{ nm} \pm 6 \text{ nm}$ with a FWHM of 29 nm. The detection peak locates at $417 \text{ nm} \pm 6 \text{ nm}$ with a FWHM of 60 nm.