

photobiologySensors Version 0.2.1

Catalogue of Sensors

Pedro J. Aphalo

January 24, 2015

1 Introduction

We will plot the spectral response of the different sensors for which data is provided in the package. We plot side-by-side the response to energy (i.e. the electrical output that would be expected at each wavelengths with a source emitting equal spectral energy irradiance at all wavelengths) and the response to photons (i.e. as above but with a source emitting equal spectral photon irradiance at all wavelengths). All responses are normalized to an area of one under the whole curve.

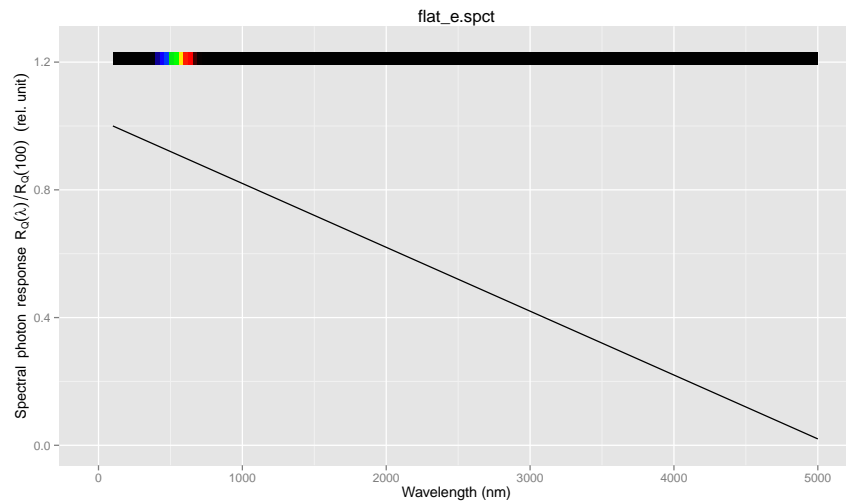
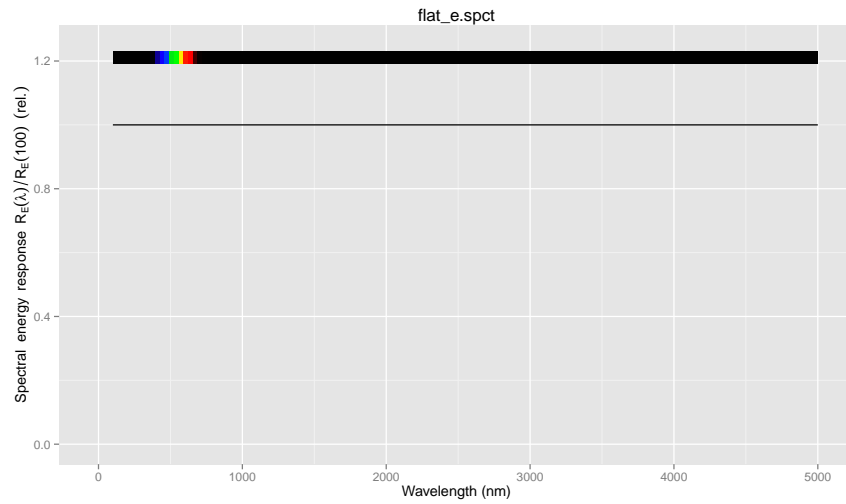
```
library(photobiologygg)
library(photobiology)
library(photobiologySensors)
```

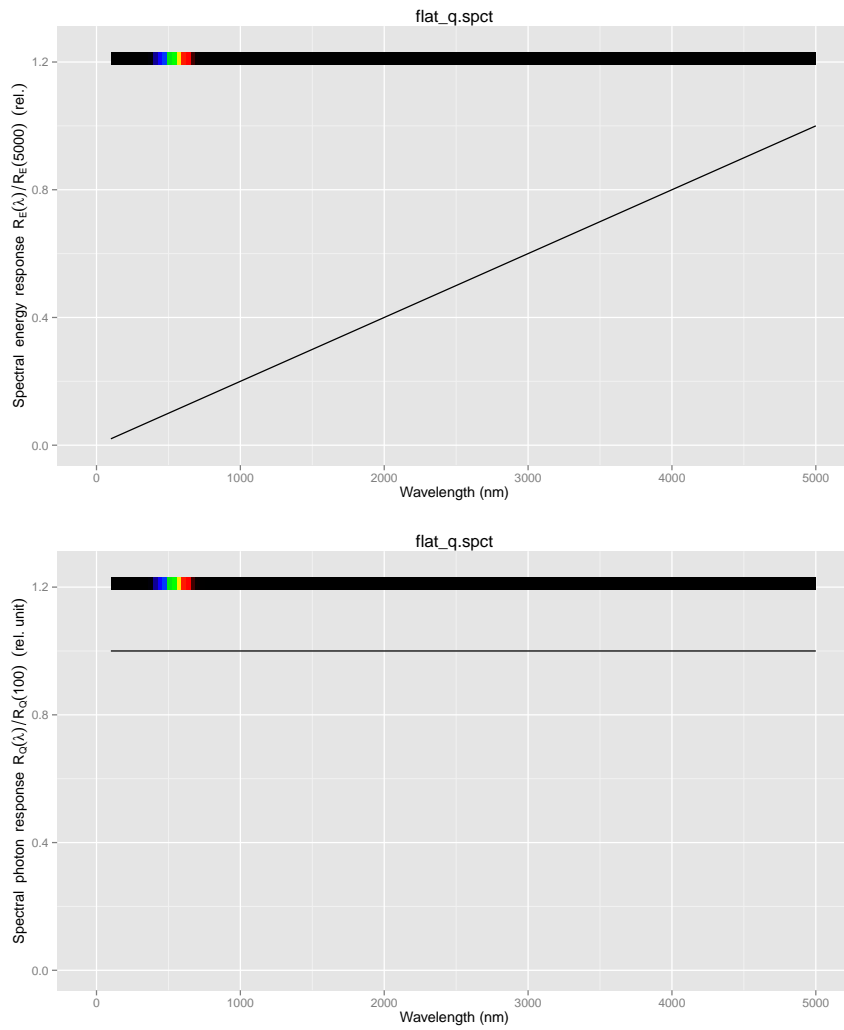
We define a function to do the actual plotting so as to not repeat code, and to make changes easier in the future.

```
plotter <-
function(spct,
  annotations = c("boxes", "labels", "summaries", "colour_guide"),
  label.qty = "contribution",
  wb.trim=TRUE){
  print(plot(spct,
    unit.out="energy",
    annotations = annotations,
    label.qty = label.qty,
    wb.trim = wb.trim) +
    labs(title=deparse(substitute(spct))))
  print(plot(spct,
    unit.out="photon",
    annotations = annotations,
    label.qty = label.qty,
    wb.trim = wb.trim) +
    labs(title=deparse(substitute(spct))))
}
```

2 Flat responses

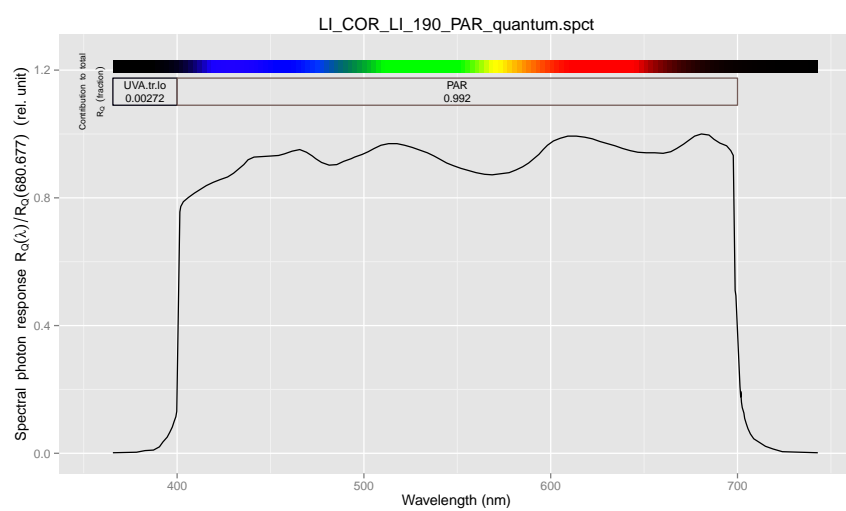
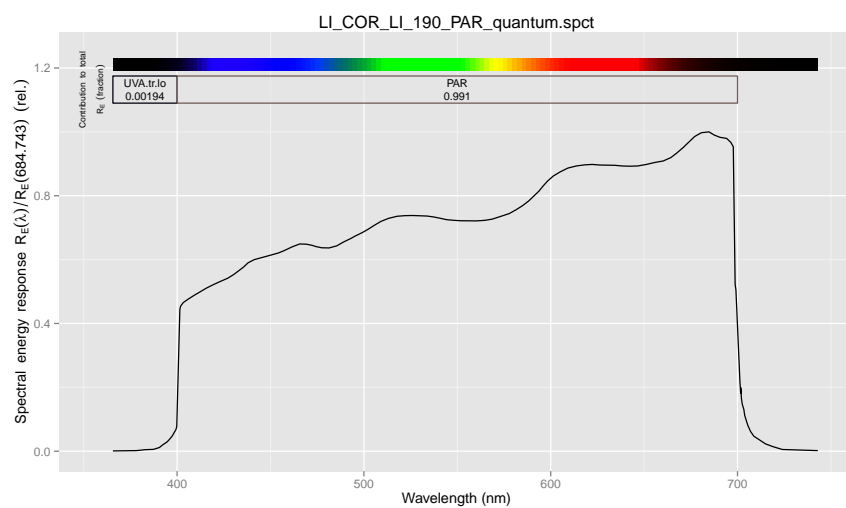
```
plotter(flat_e.spct, annotations = "colour_guide")  
plotter(flat_q.spct, annotations = "colour_guide")
```

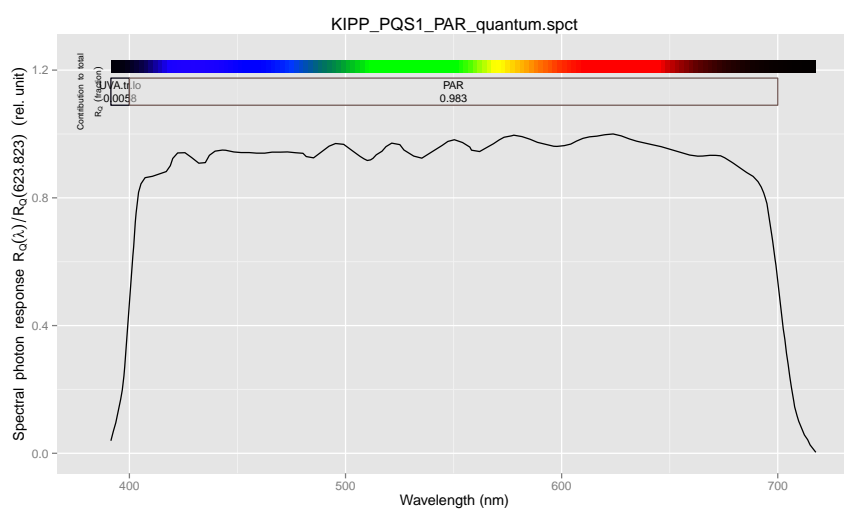
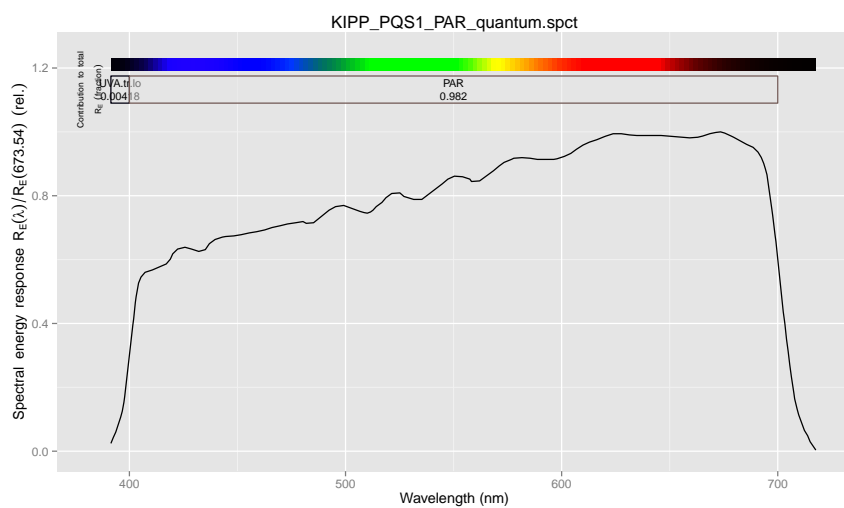


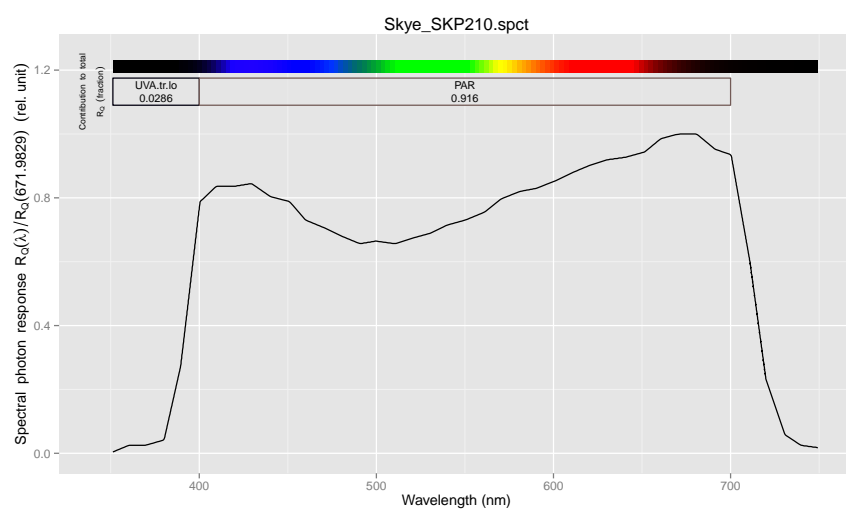
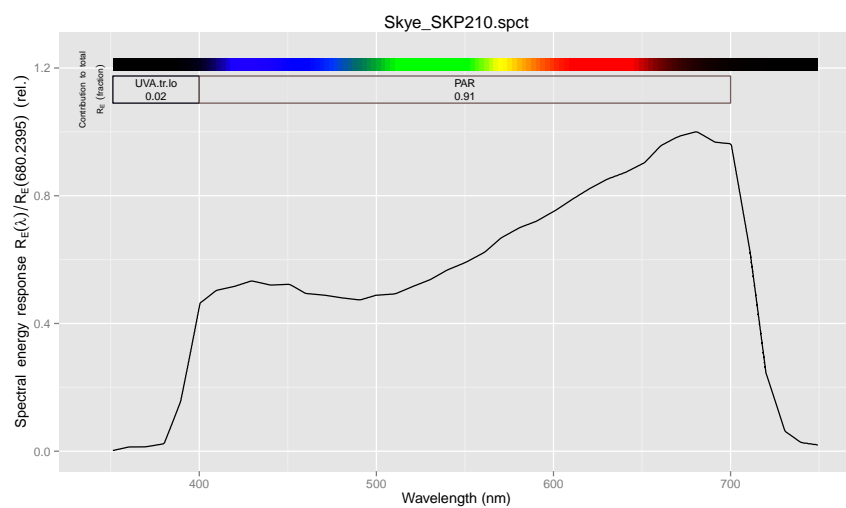


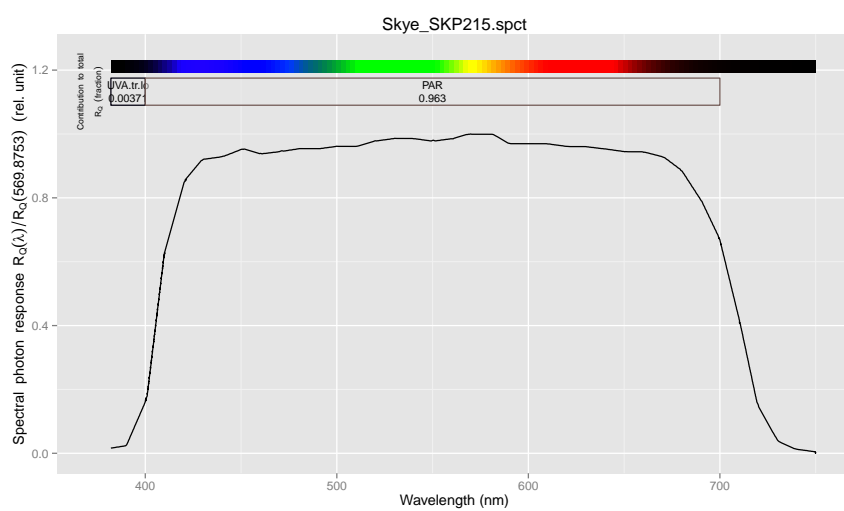
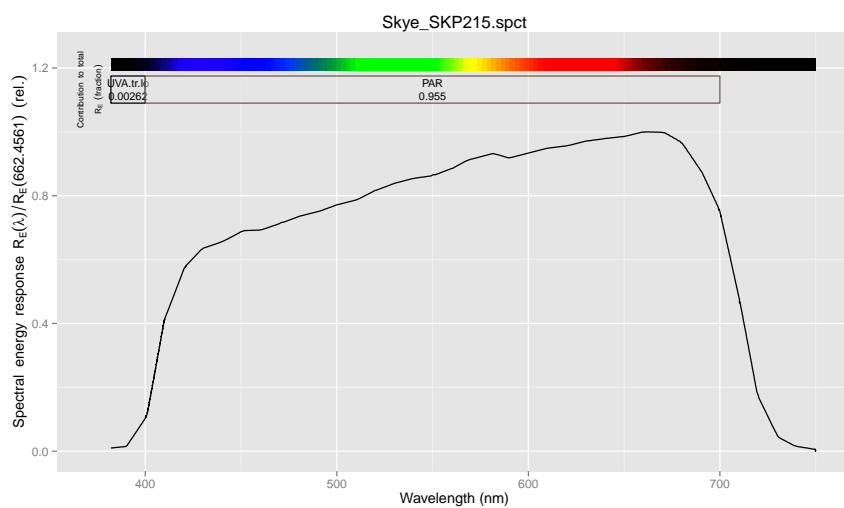
3 Quantum PAR sensors

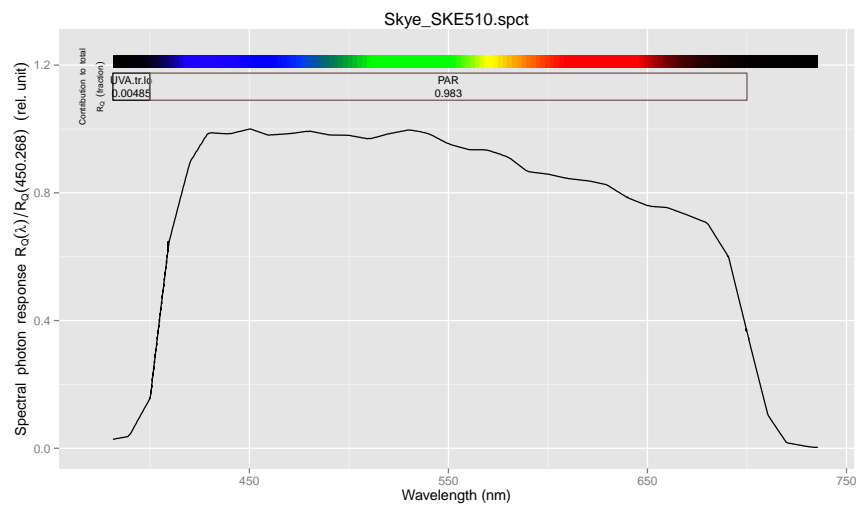
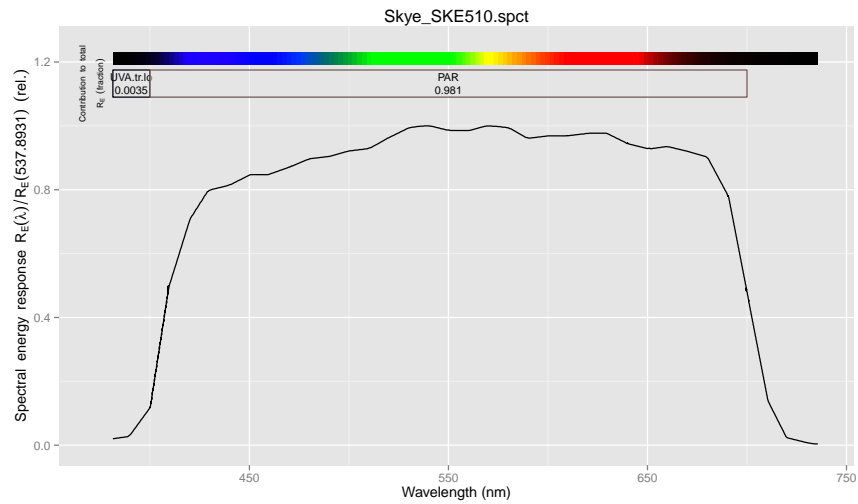
```
plotter(LI_COR_LI_190_PAR_quantum.spct)
plotter(KIPP_PQS1_PAR_quantum.spct)
plotter(Skye_SKP210.spct)
plotter(Skye_SKP215.spct)
plotter(Skye_SKE510.spct)
```









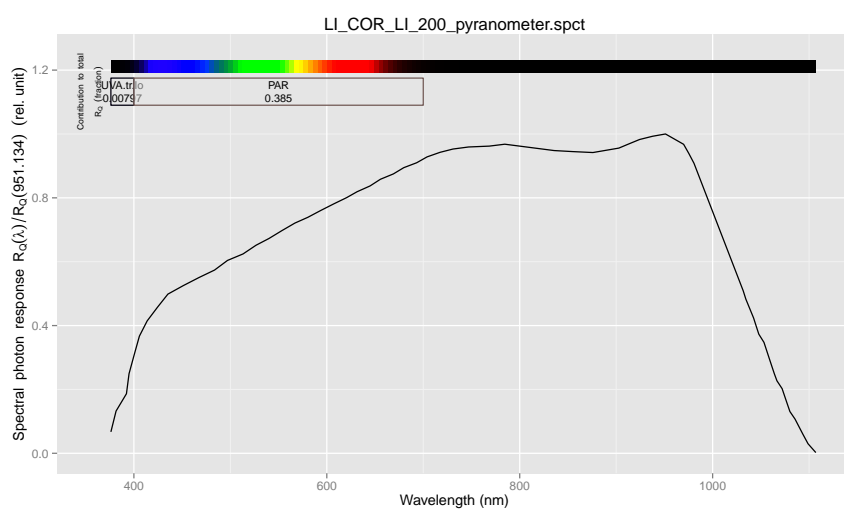
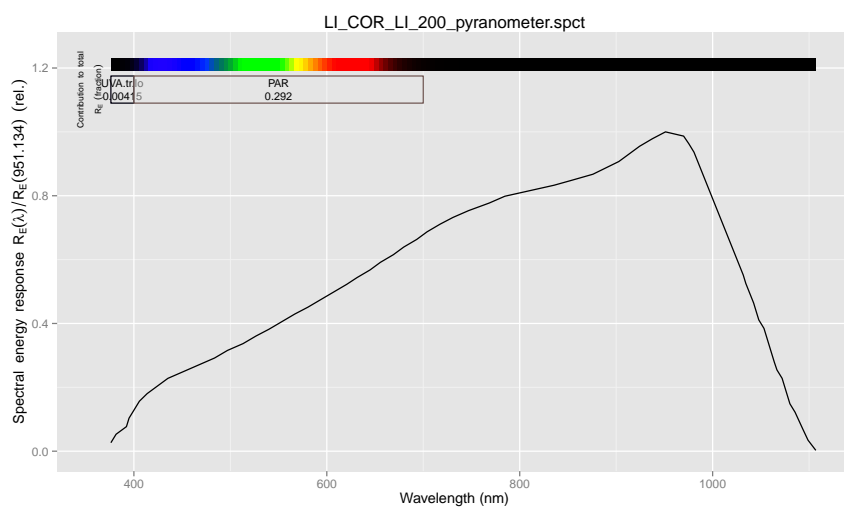


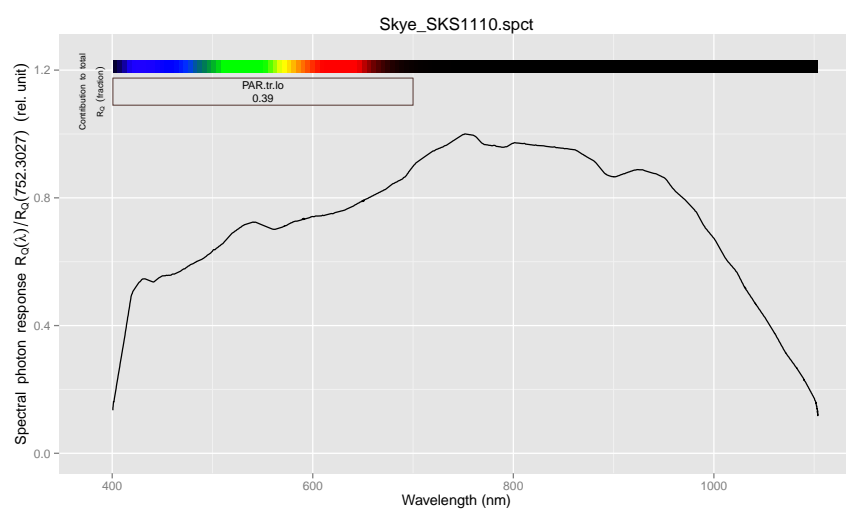
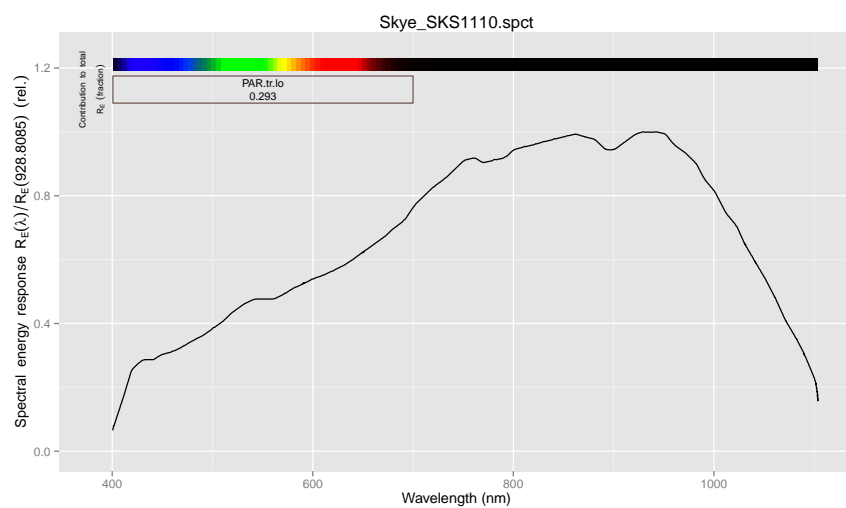
4 Other sensors

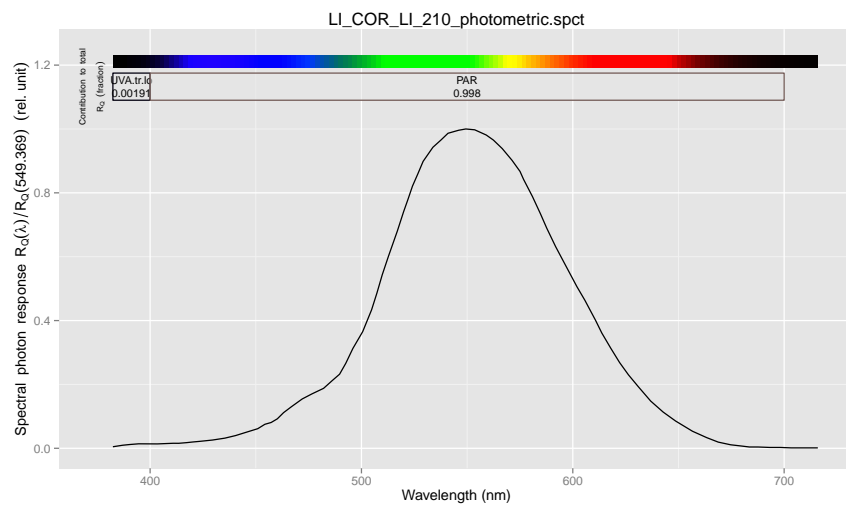
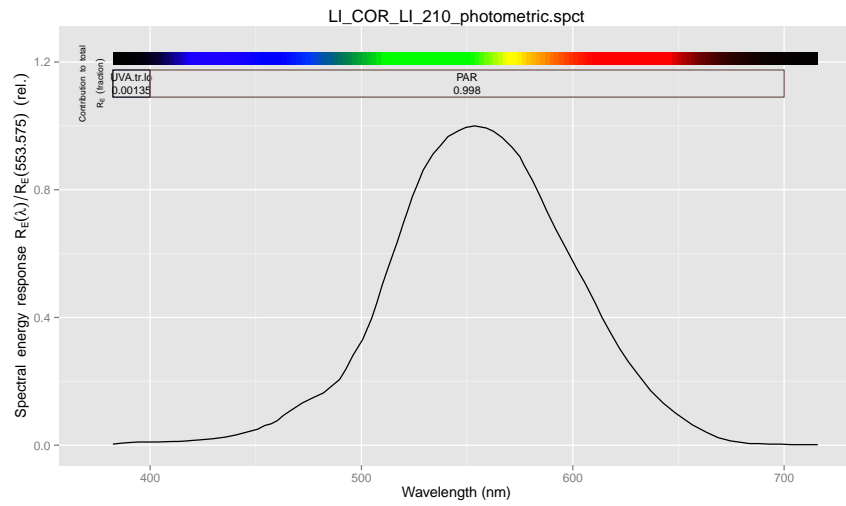
```

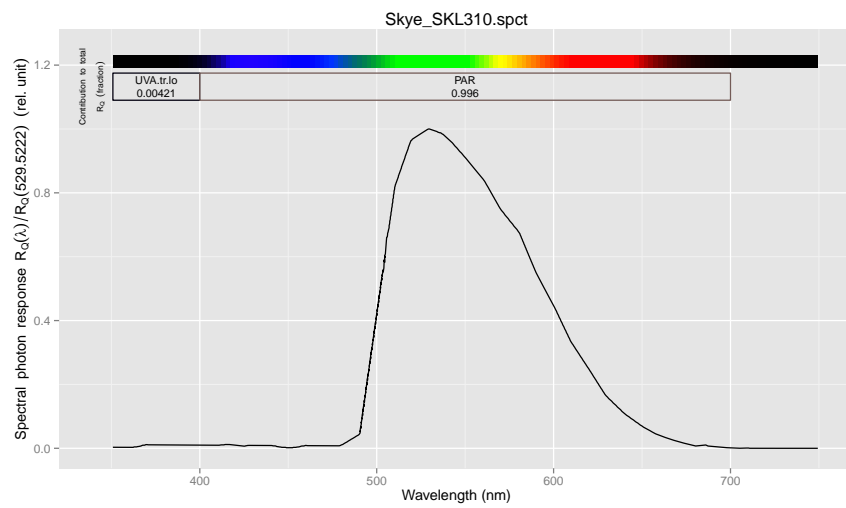
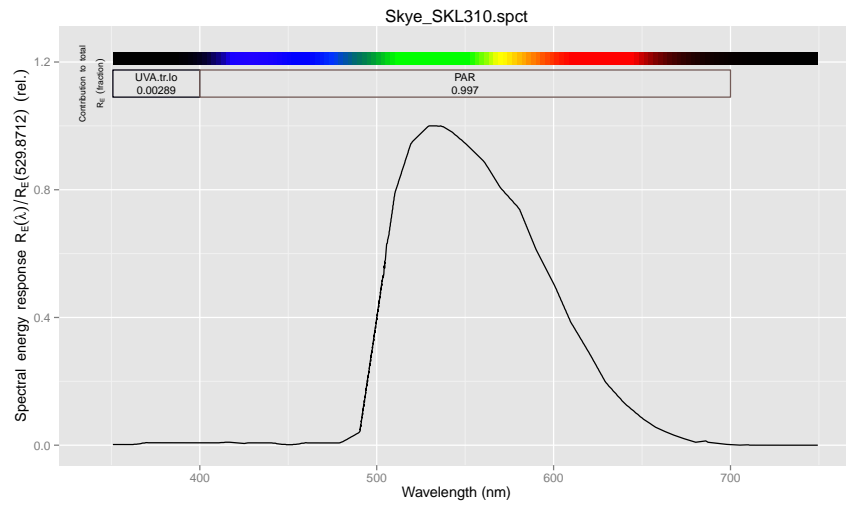
plotter(LI_COR_LI_200_pyranometer.spct)
plotter(Skye_SKS1110.spct)
plotter(LI_COR_LI_210_photometric.spct)
plotter(Skye_SKL310.spct)

```

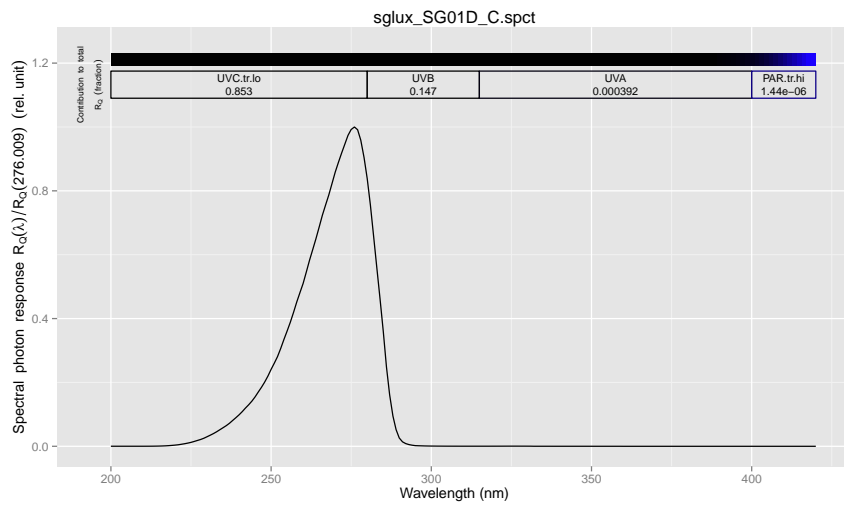
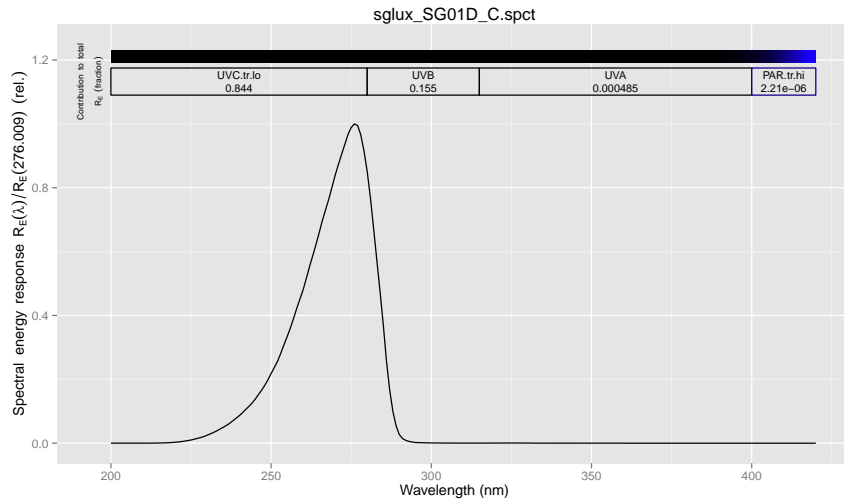






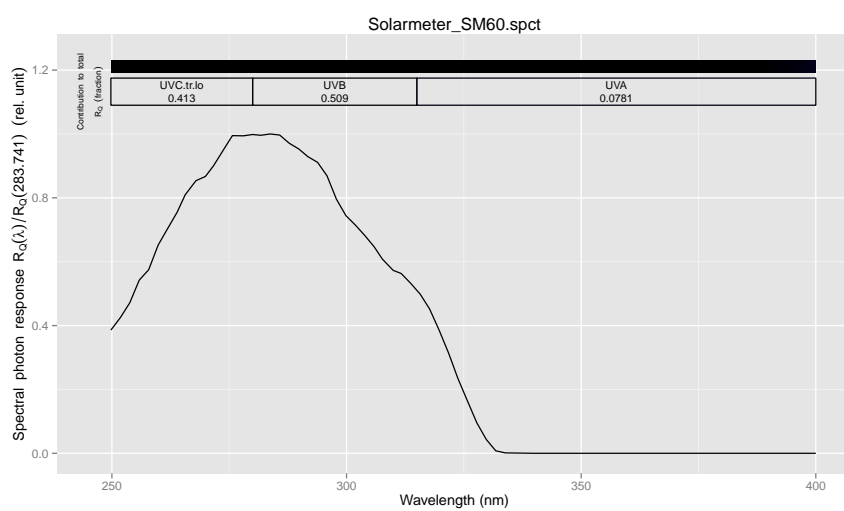
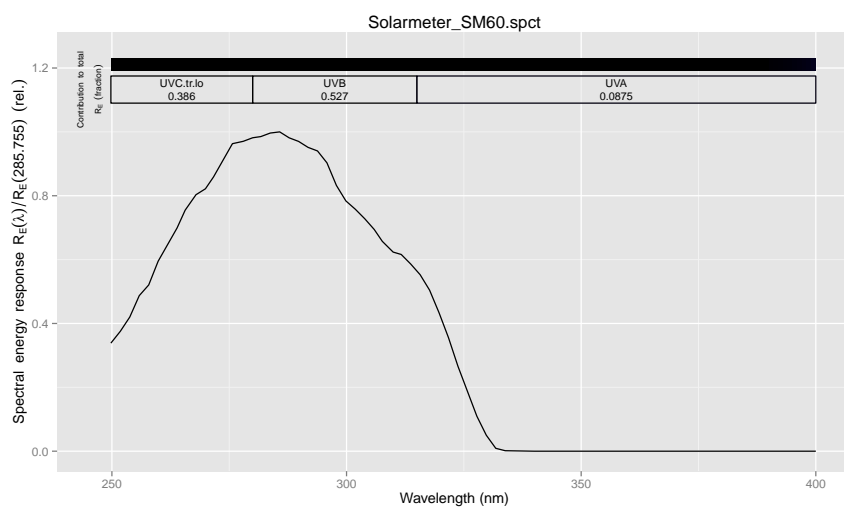
5 UVC sensors

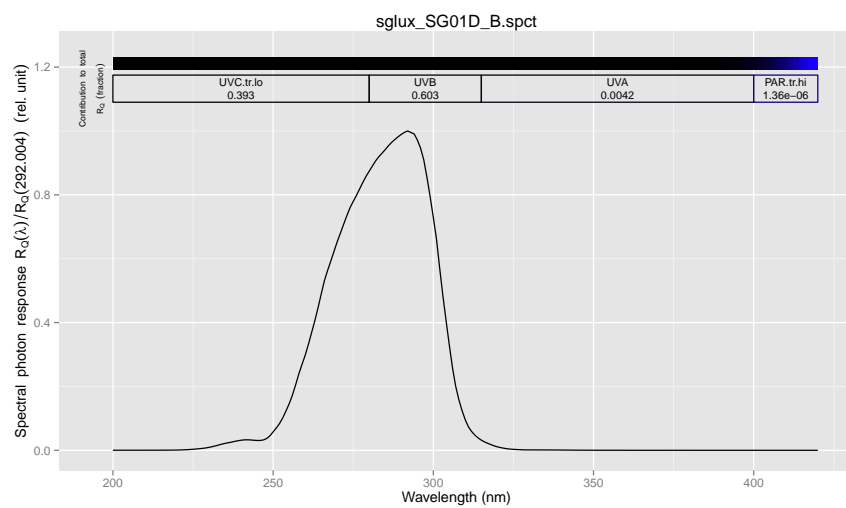
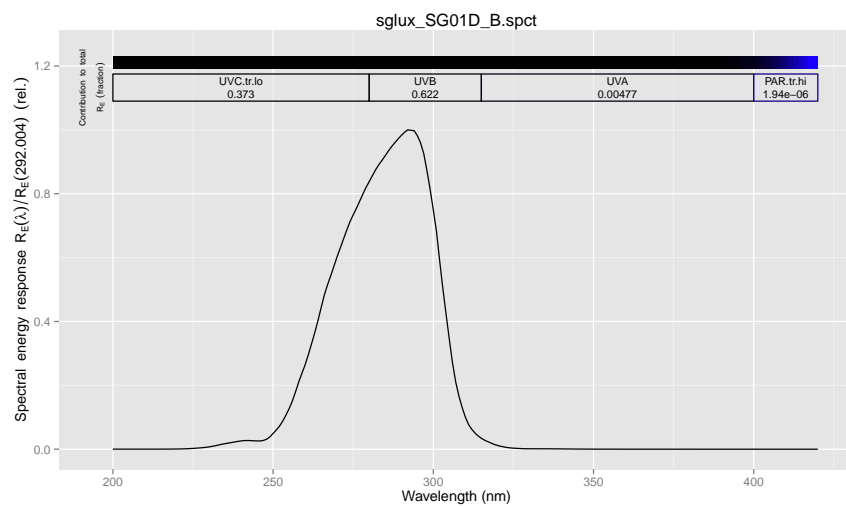
```
plotter(sglux_SG01D_C.spct)
```

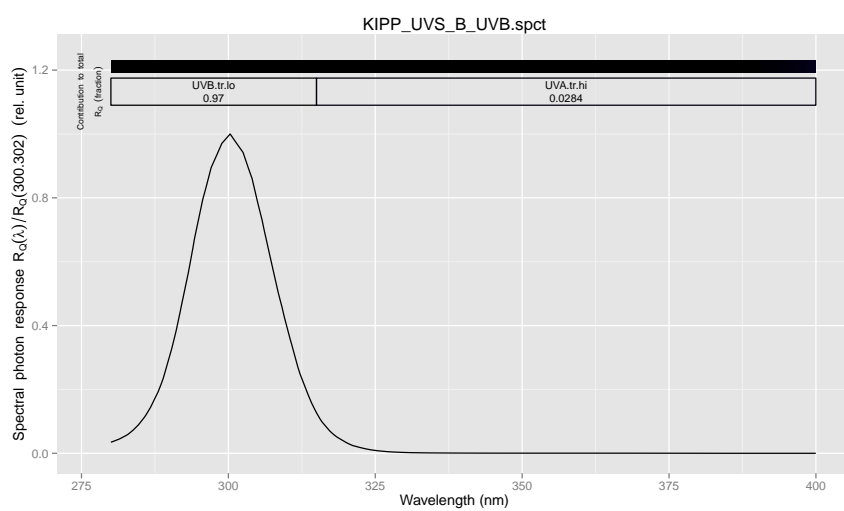
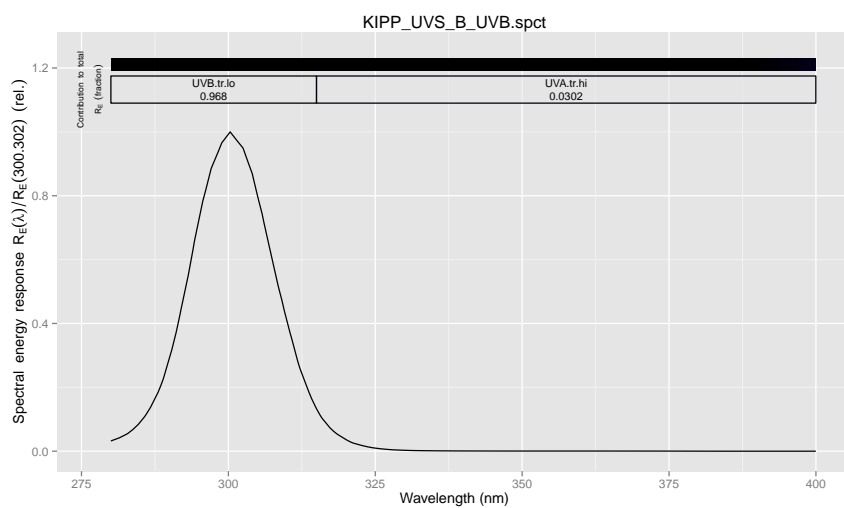


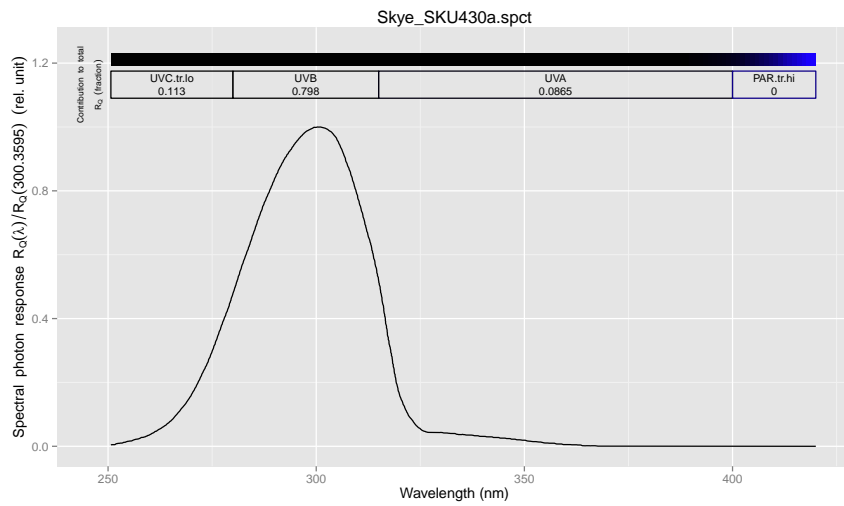
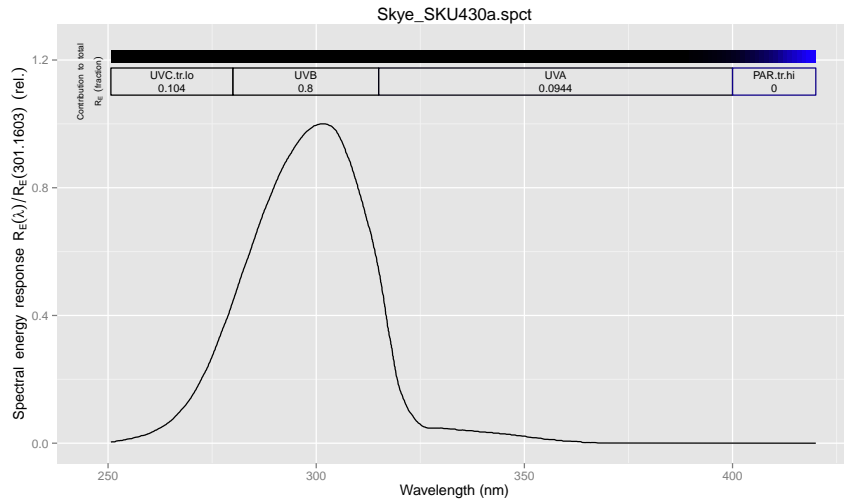
6 UVB sensors

```
plotter(Solarmeter_SM60.spct)
plotter(sglux_SG01D_B.spct)
plotter(KIPP_UVS_B_UVB.spct)
plotter(Skye_SKU430a.spct)
```







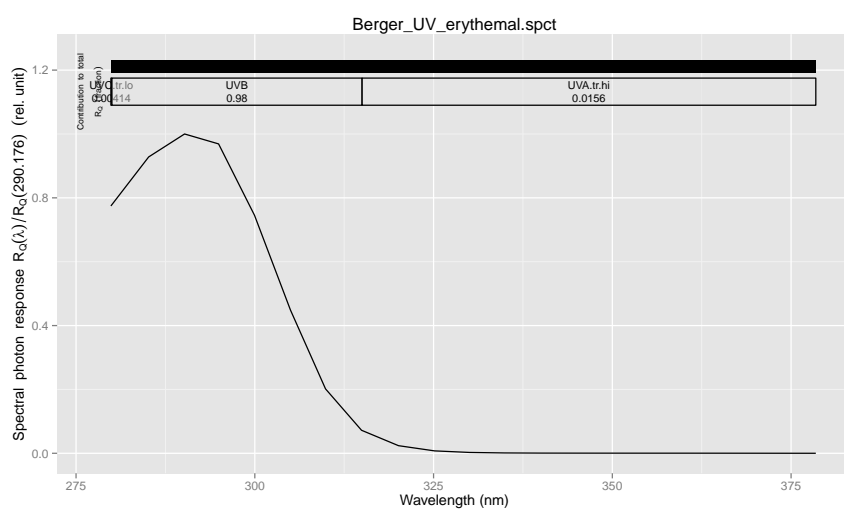
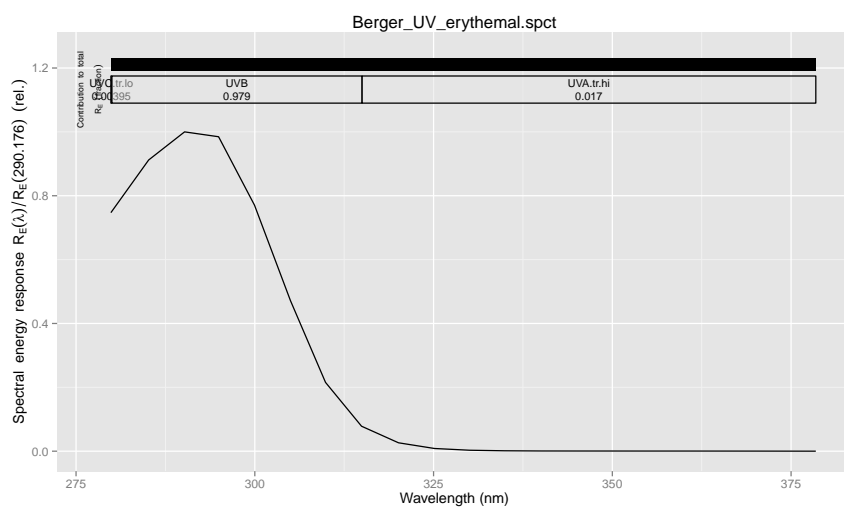


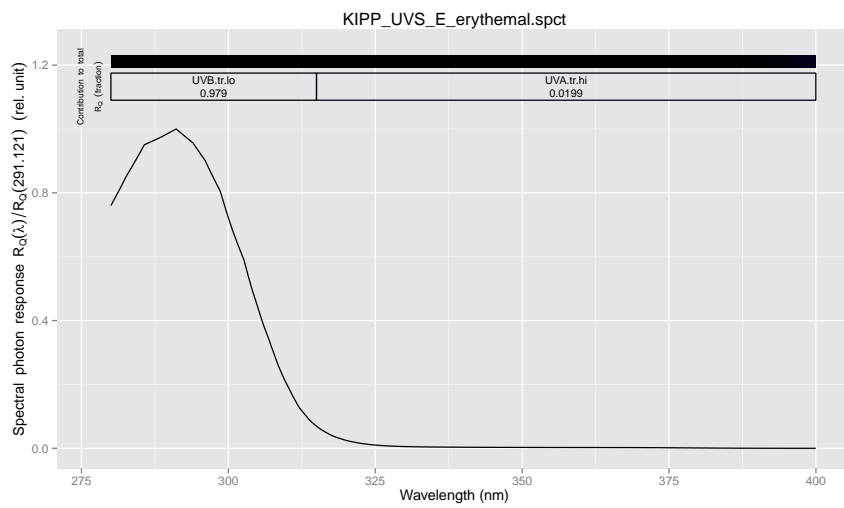
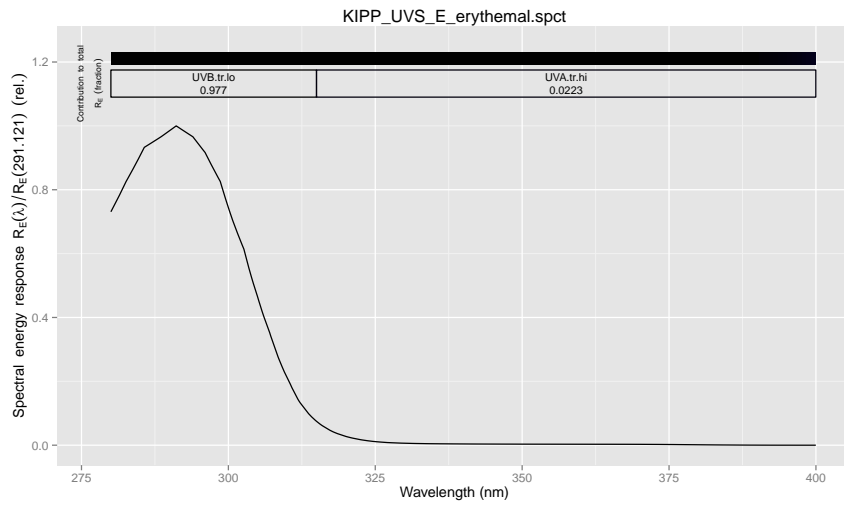
7 Erythmal UV sensors

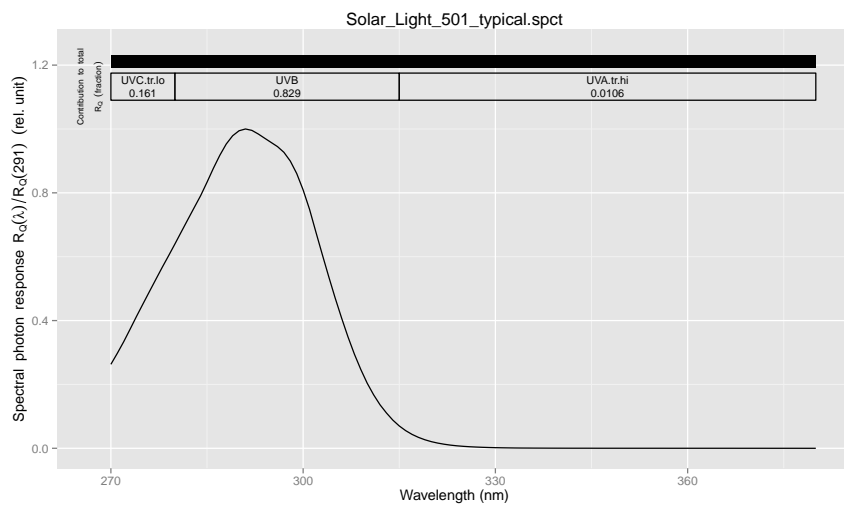
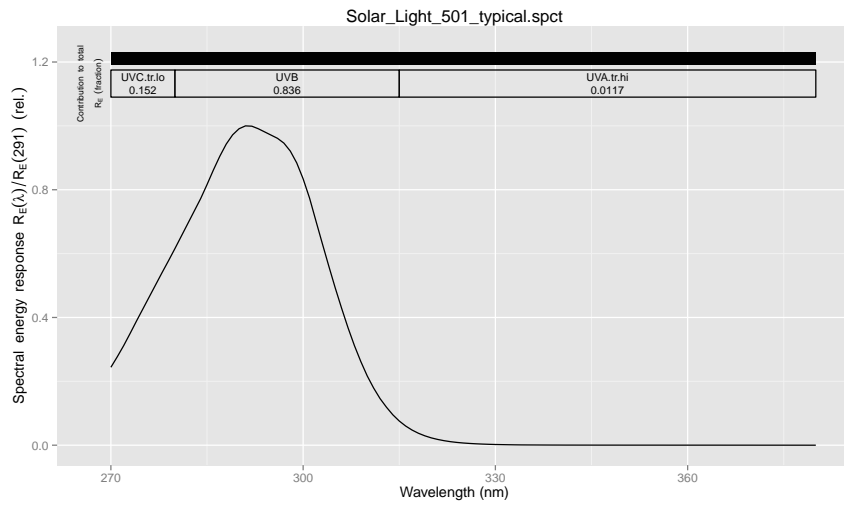
```

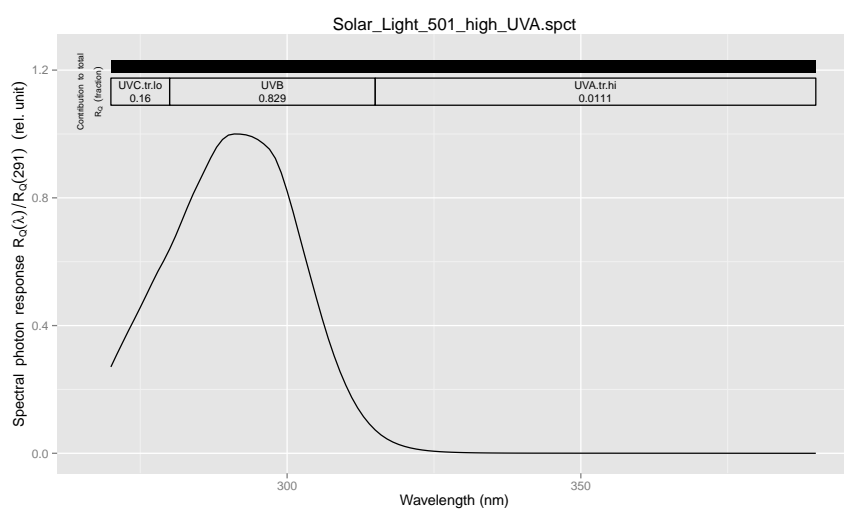
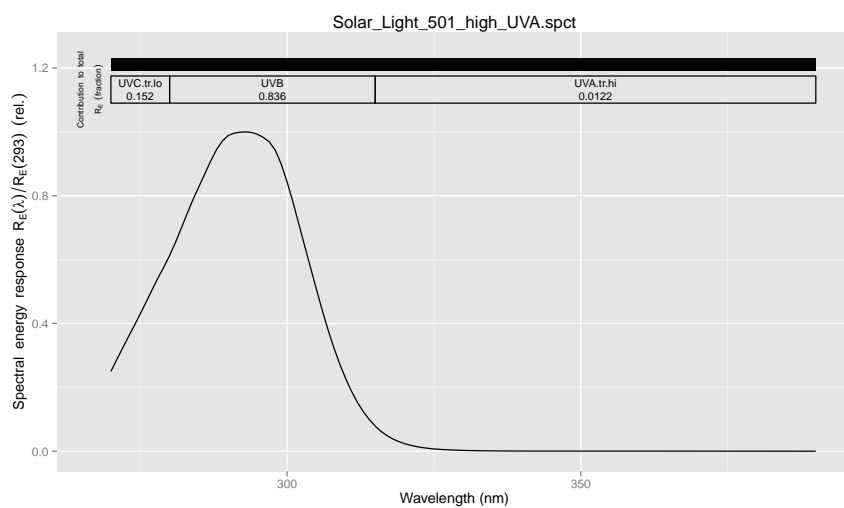
plotter(Berger_UV_erythmal.spct)
plotter(KIPP_UVS_E_erythmal.spct)
plotter(Solar_Light_501_typical.spct)
plotter(Solar_Light_501_high_UVA.spct)
plotter(Solar_Light_501_low_UVA.spct)
plotter(Vital_BW_20.spct)
plotter(Thies_E1c.spct)
plotter(Skye_SKU440a.spct)

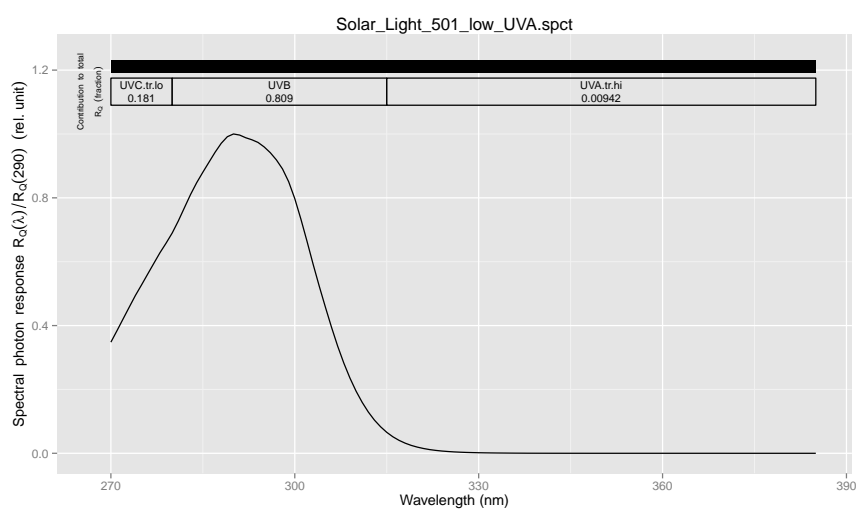
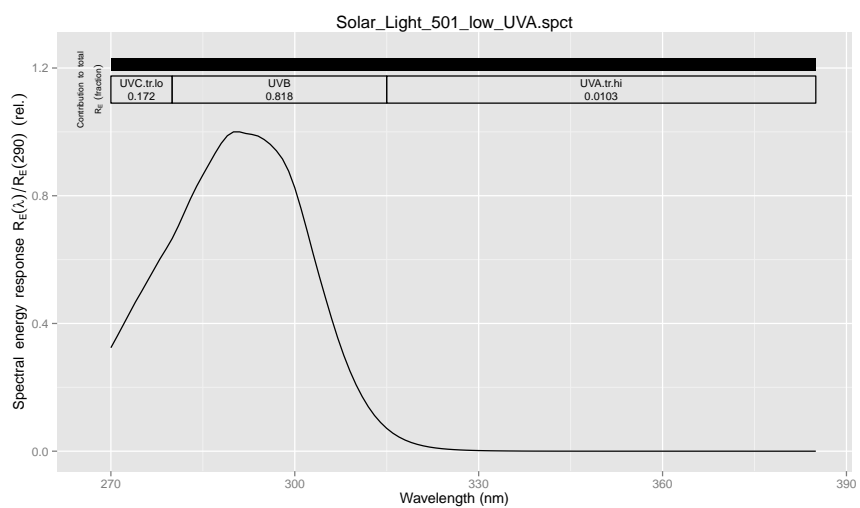
```

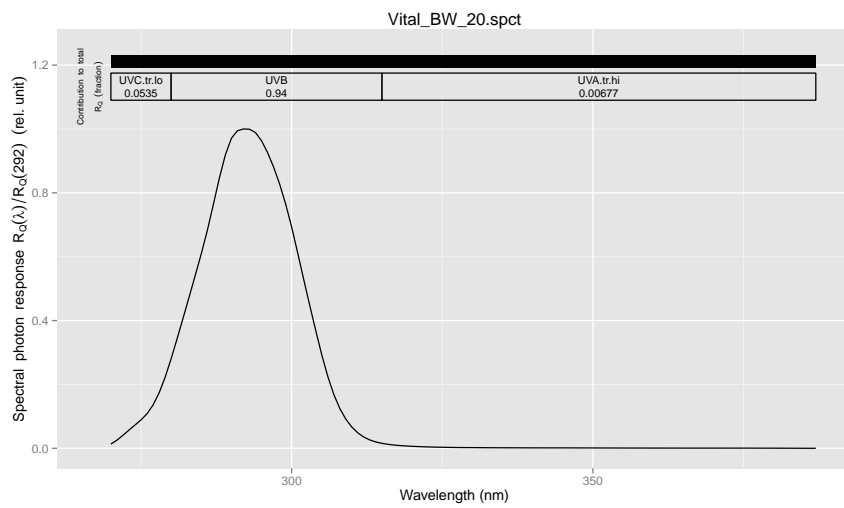
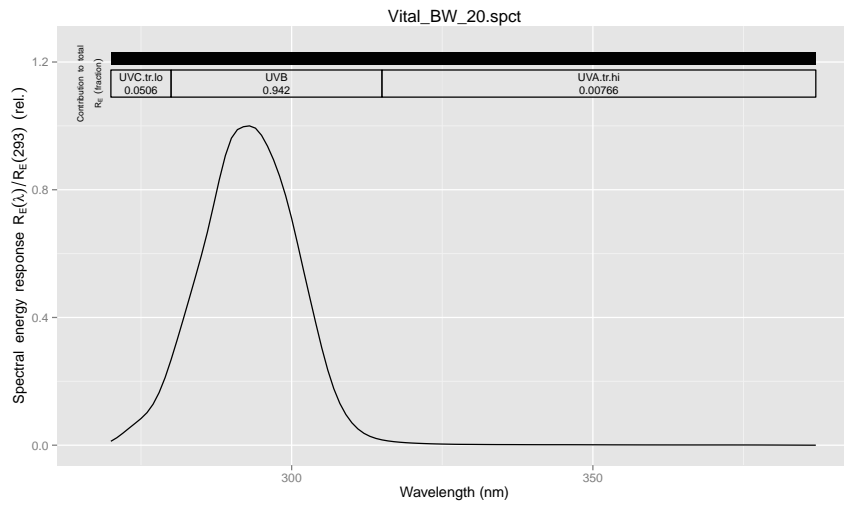


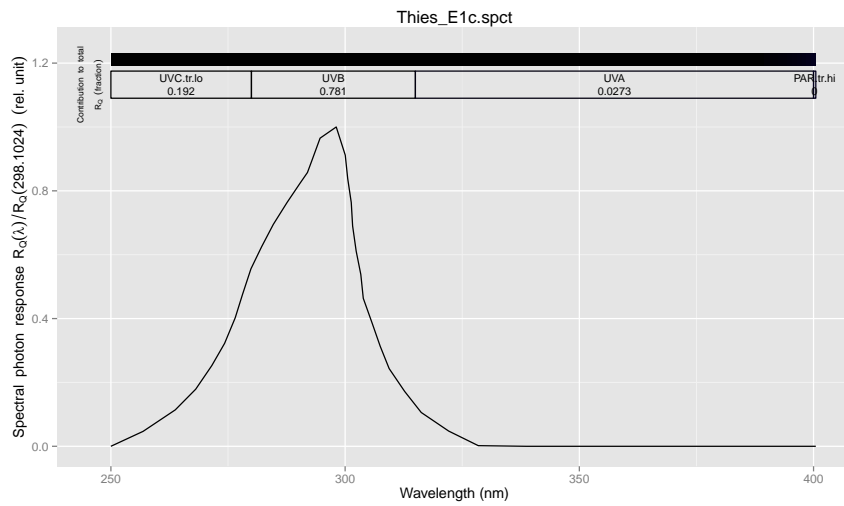
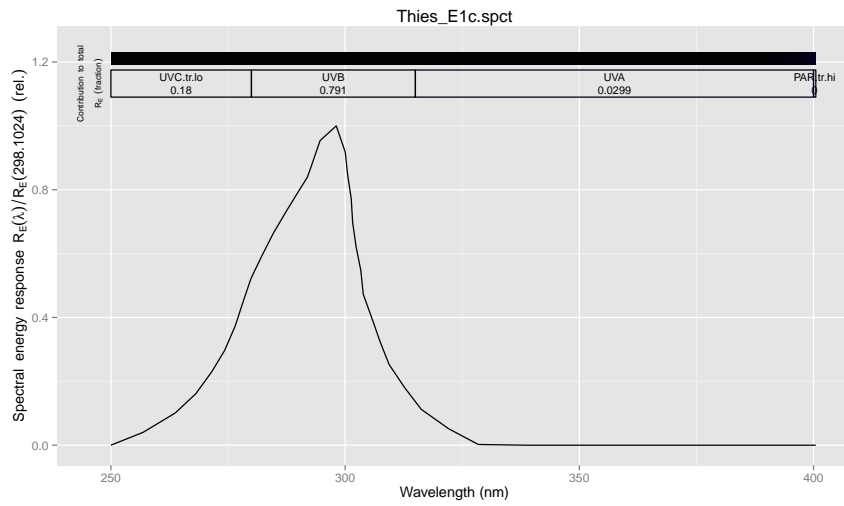


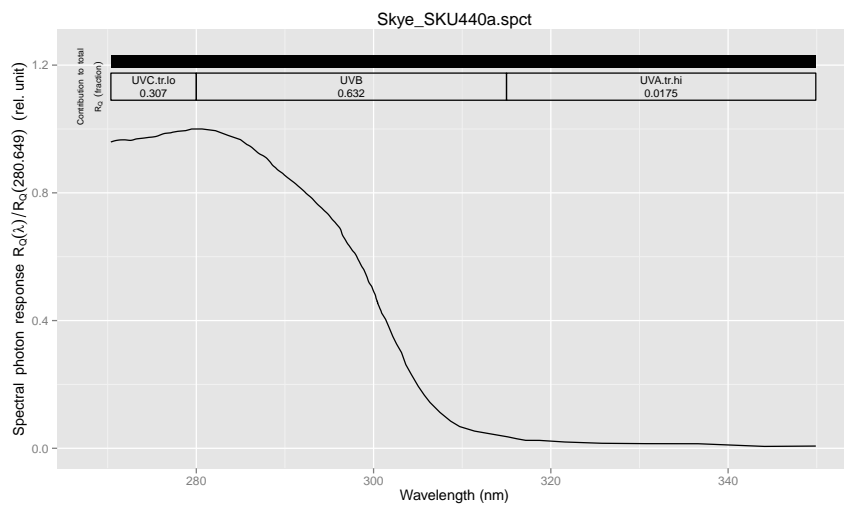
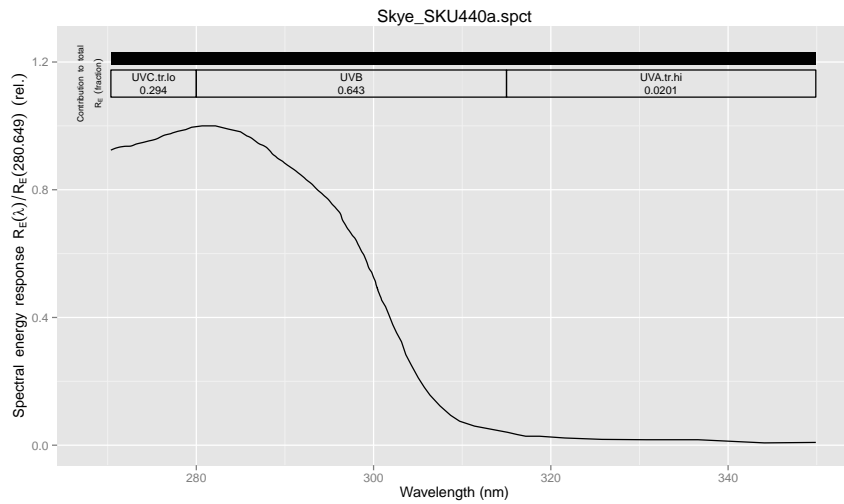










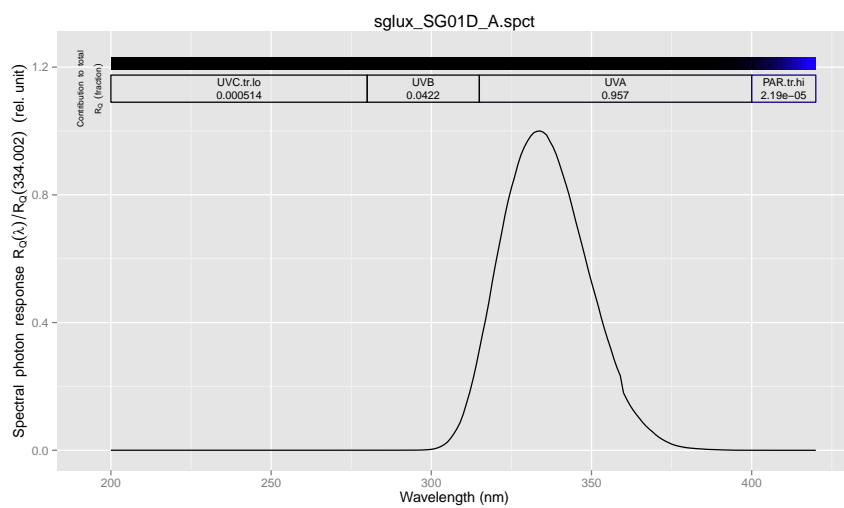
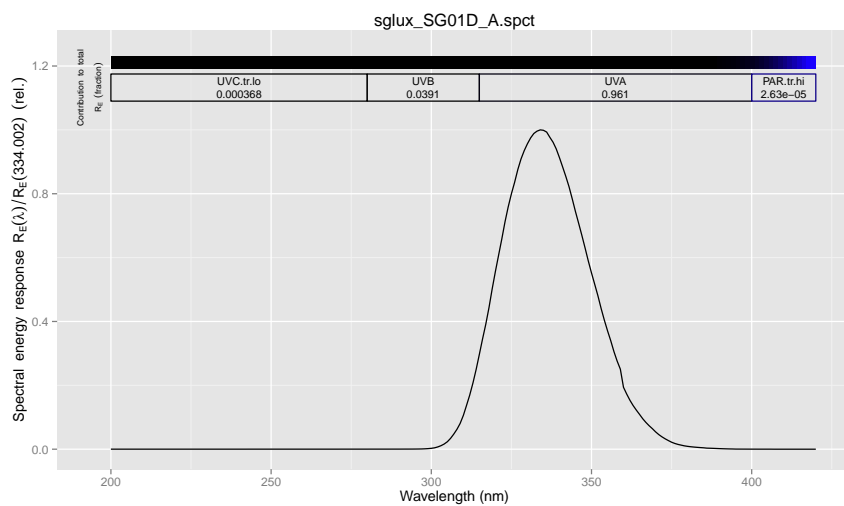


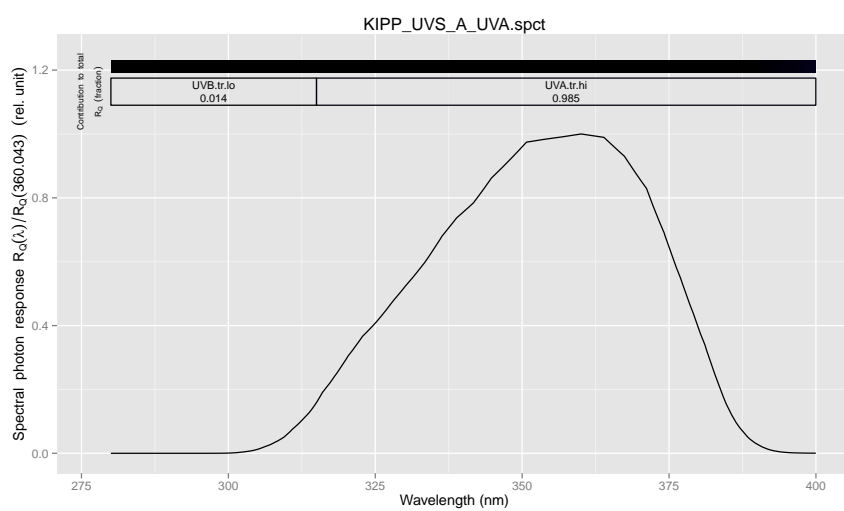
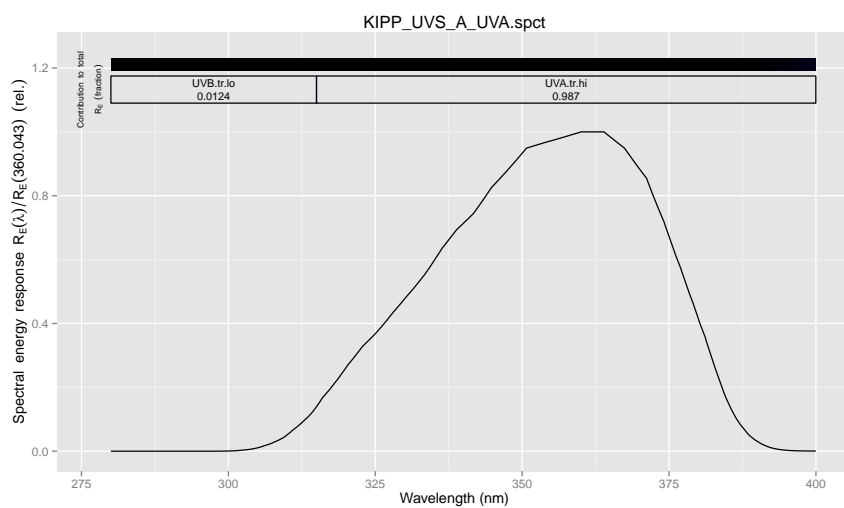
8 UVA sensors

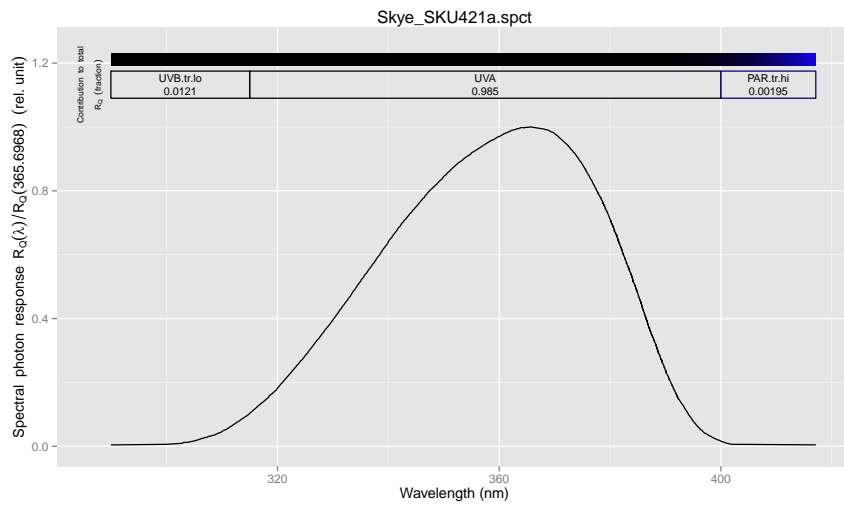
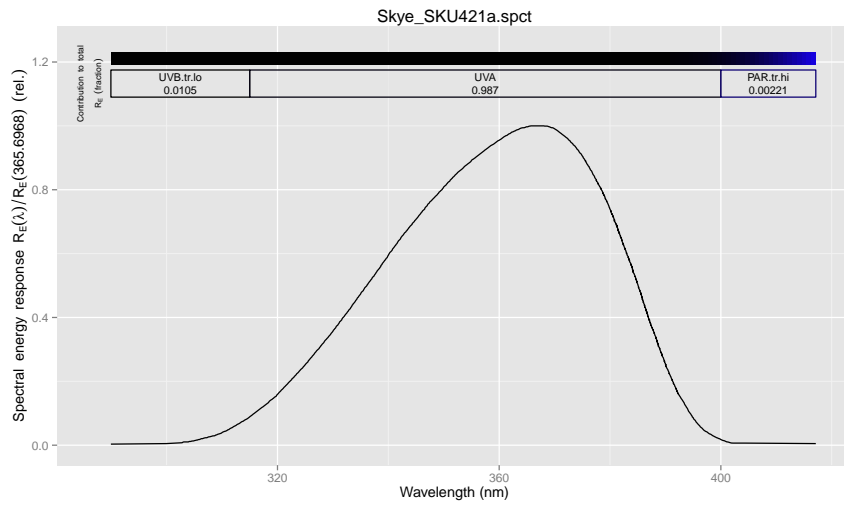
```

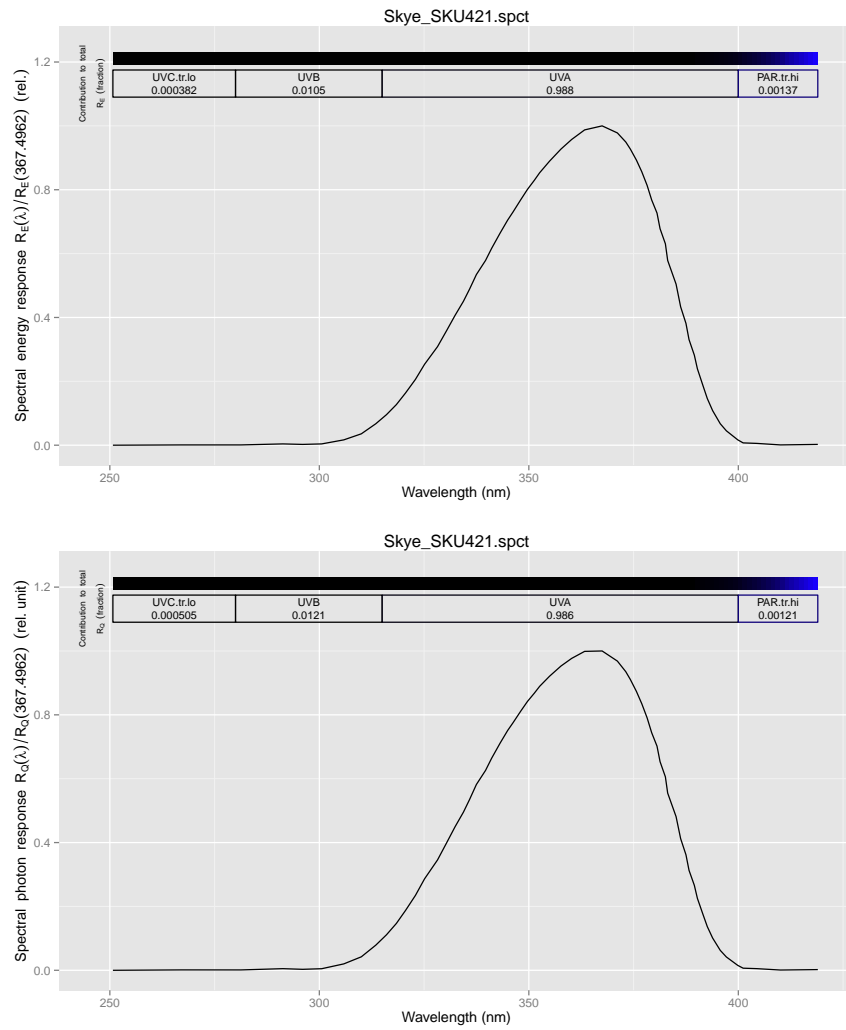
plotter(sglux_SG01D_A.spct)
plotter(KIPP_UVS_A_UVA.spct)
plotter(Skye_SKU421a.spct)
plotter(Skye_SKU421.spct)

```



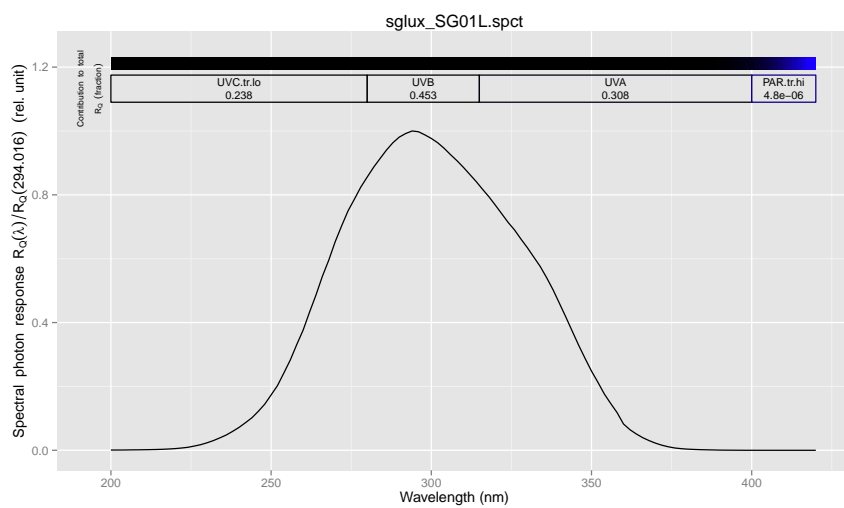
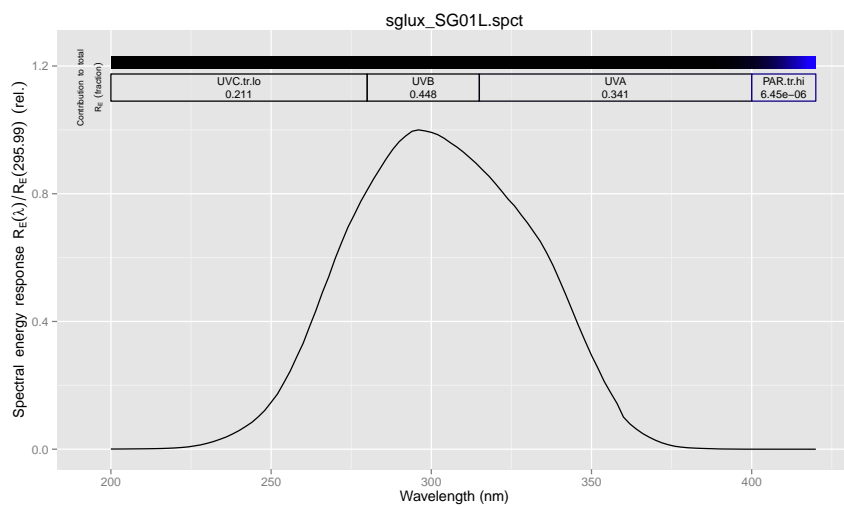


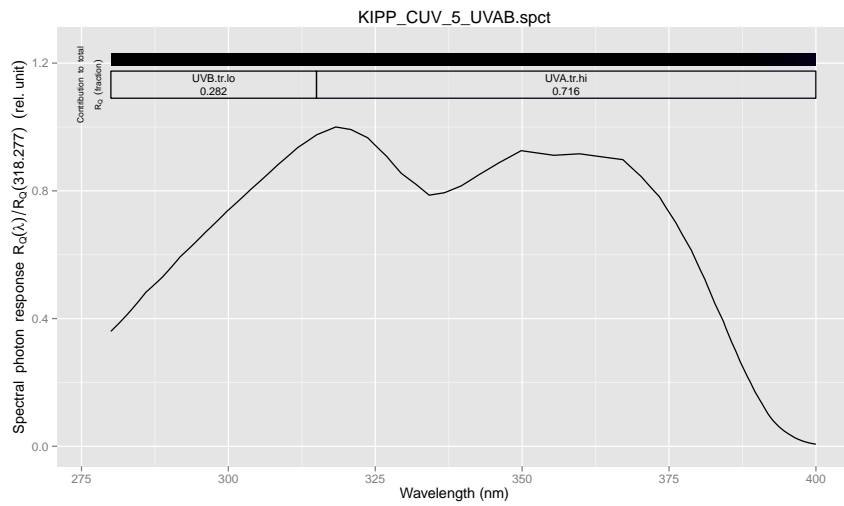
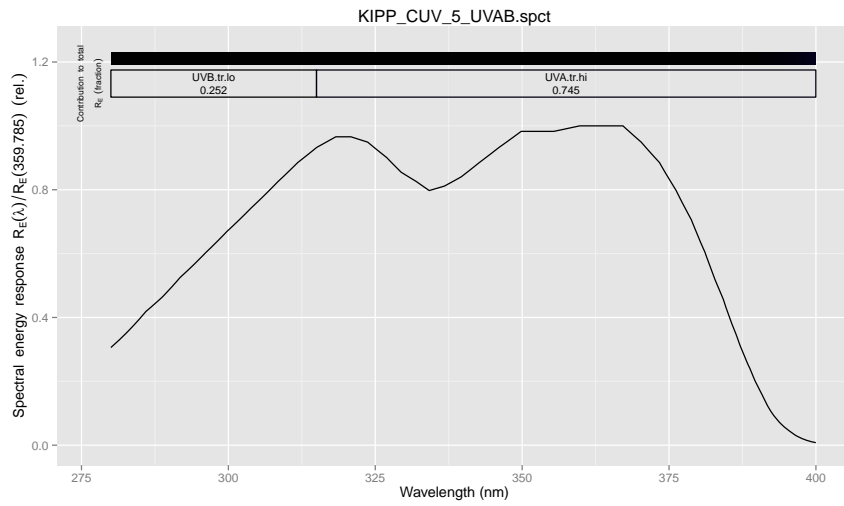




9 Broadband UV sensors

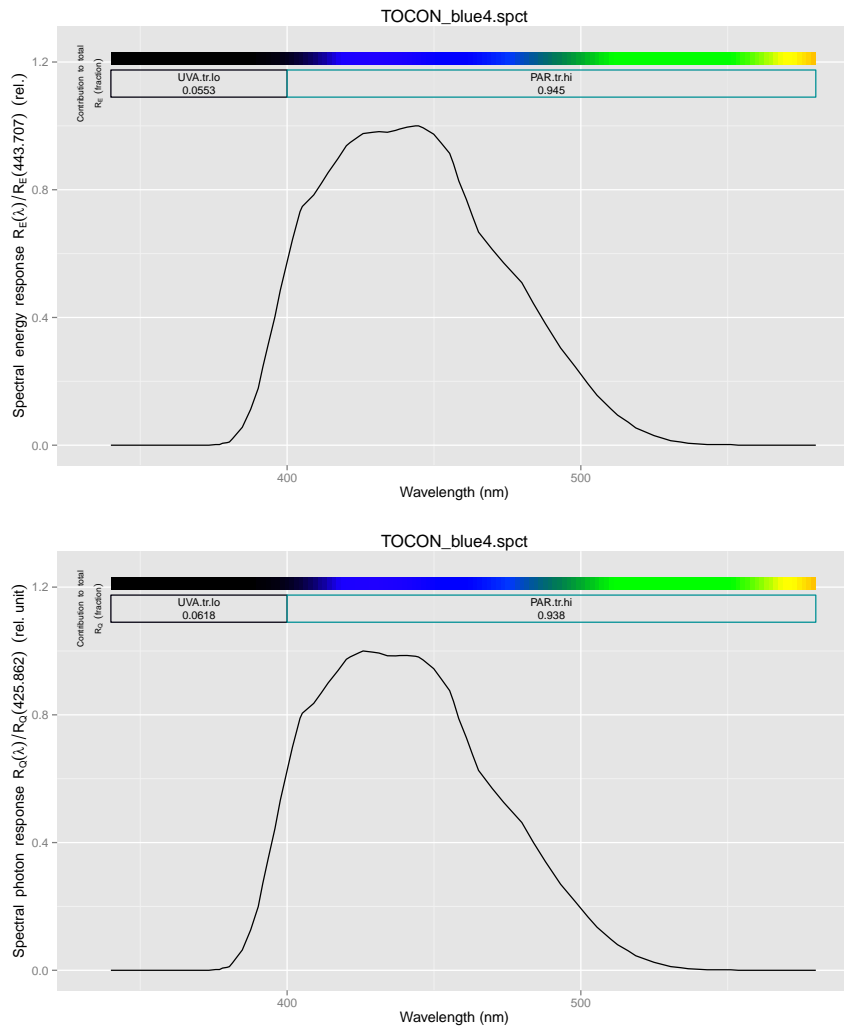
```
plotter(sglux_SG01L.spct)
plotter(KIPP_CUV_5_UVAB.spct)
```





10 Blue sensors

```
plotter(TOCON_blue4.spct)
```



11 Red and far-red sensors

```
plotter(Skye_SKR110_R.spct)
plotter(Skye_SKR110_FR.spct)
```