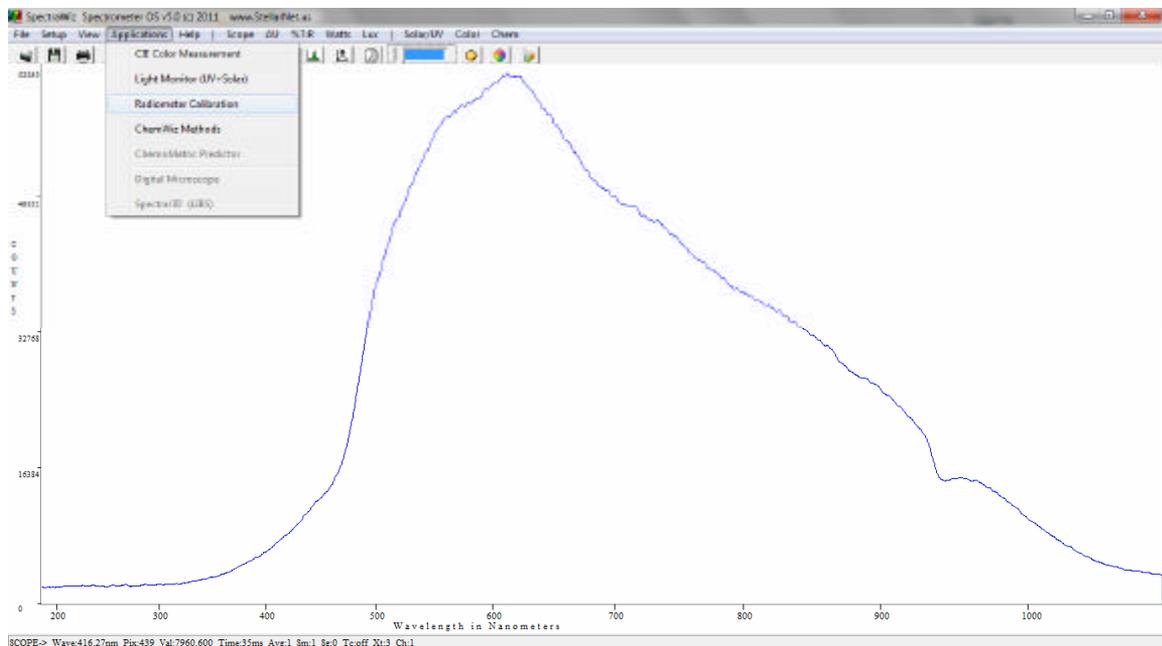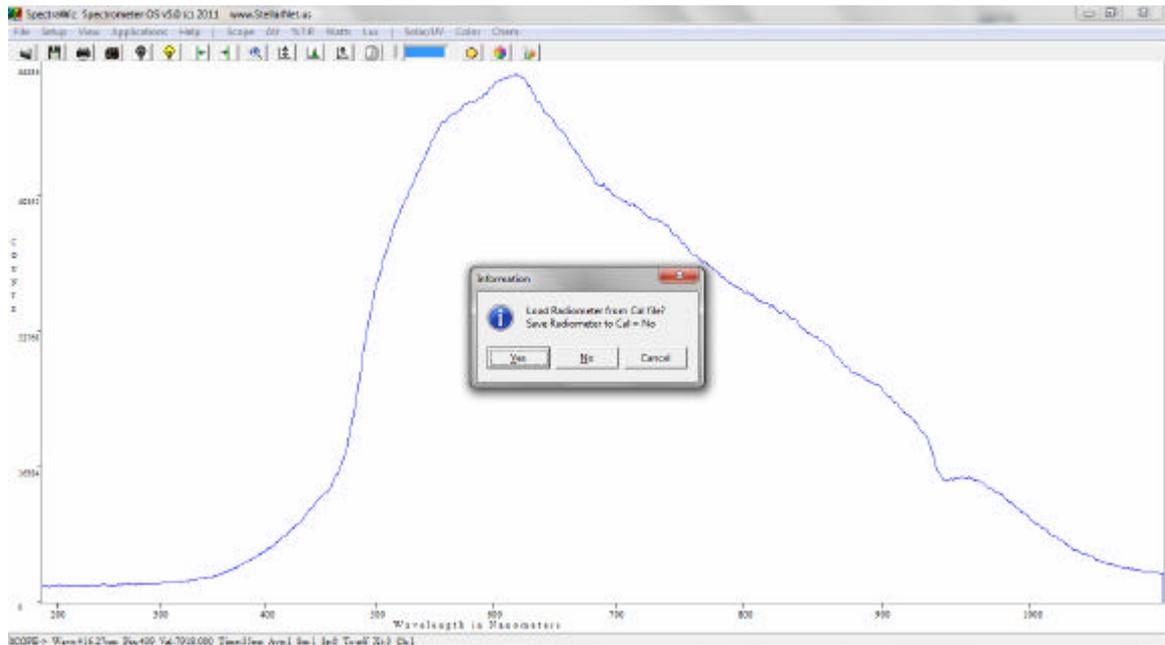# Tutorial: Irradiance Calibration using SpectraWiz® Software:
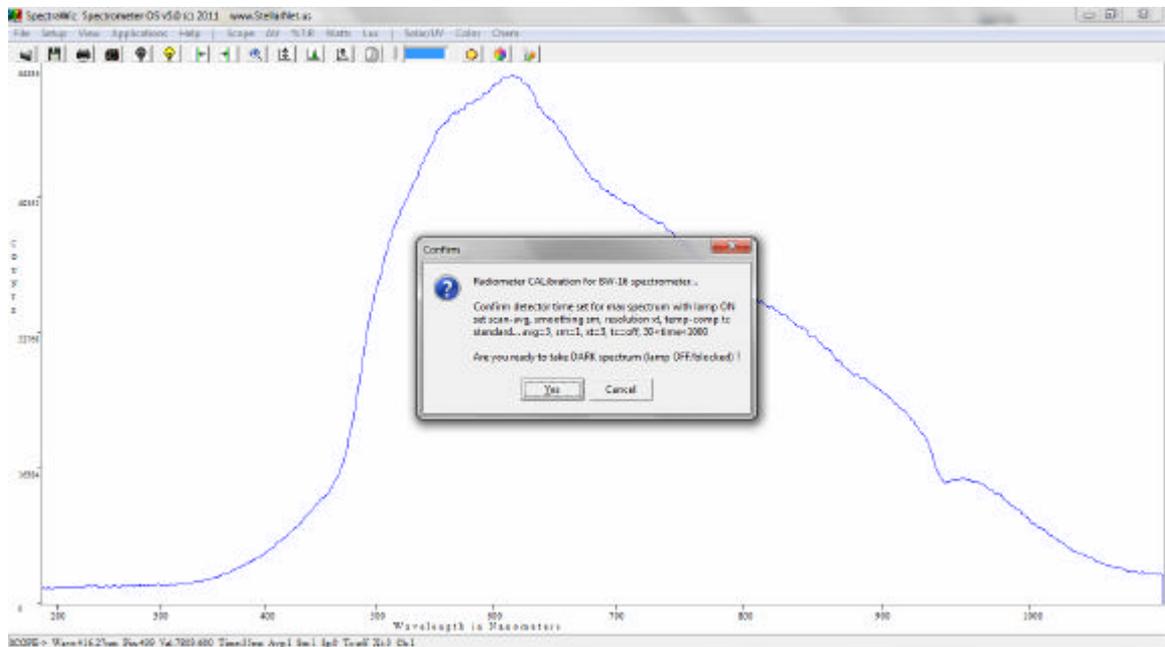
1)   Ensure that all calibration coefficients (C1, C2, and C3) and interface port and detector settings are correctly entered for the StellarNet spectrometer being used for irradiance calibration (y-axis).

2)   While in Scope mode, point the cosine receptor or integrating sphere at the calibrated light source. If you are calibrating with the StellarNet model SL1-CAL calibration light source, you may place the CR2 either inside of the nosecone (inserted) or at the tip of the nosecone (at plane). Integrating spheres must be in the "at plane" position, as they cannot be inserted.

3)   Adjust the integration time and averaging levels to maximize the light output of the source.

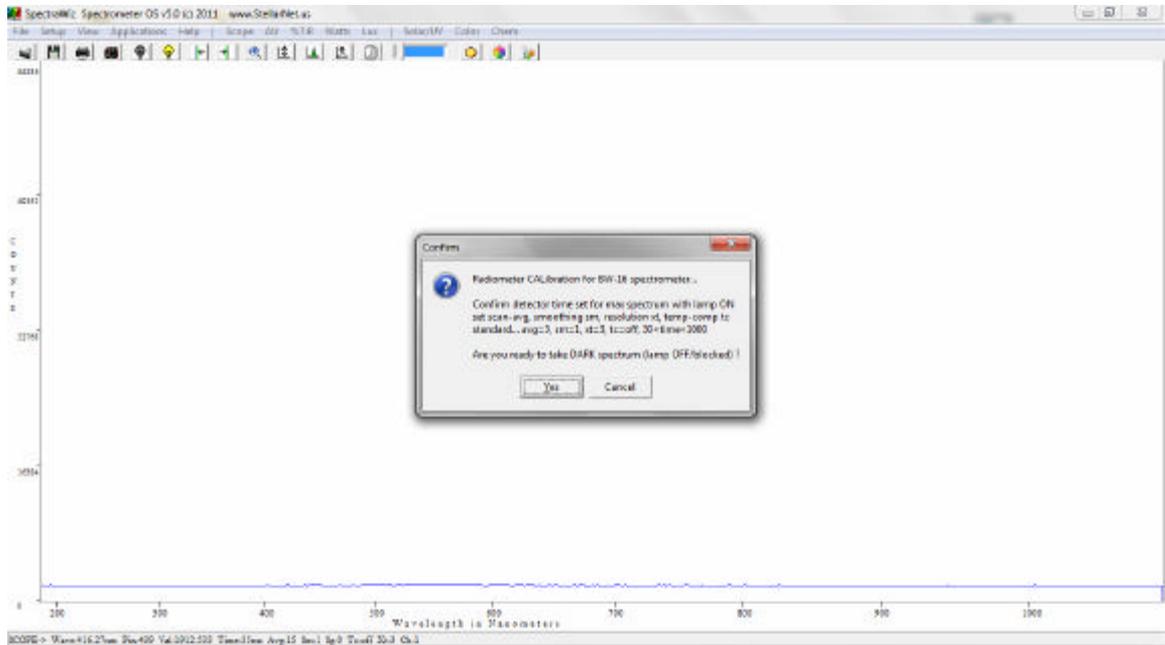4)   Select the Irradiance Application by going to Apps → Radiometer Calibration.

5)	Click Cancel to begin the calibration procedure.
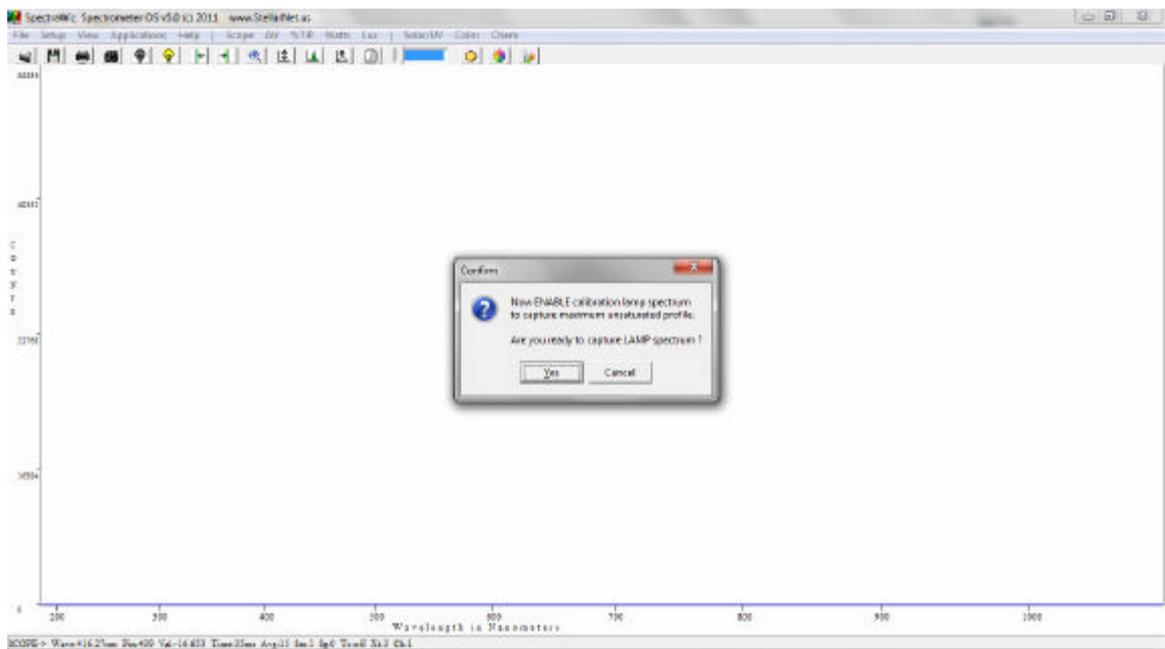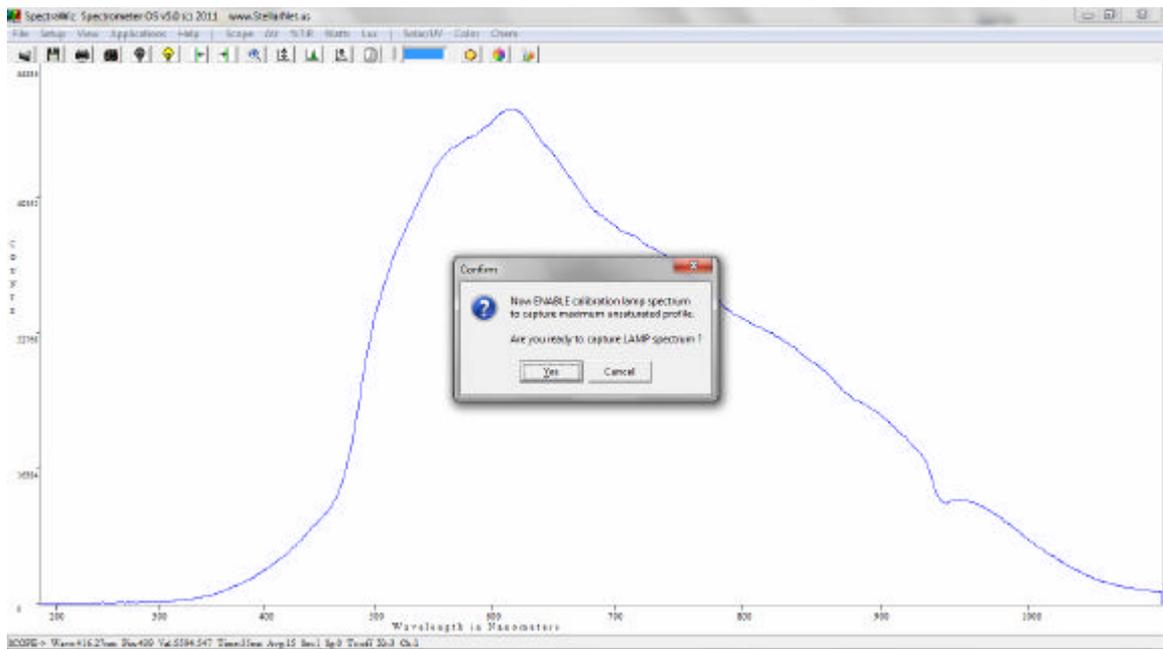

6)	You will be prompted to take a Dark Spectrum.

7)	Block the light to the collection optics (or turn the light source off) and wait

until you obtain a flat line. Click YES to take a dark (background) spectrum.
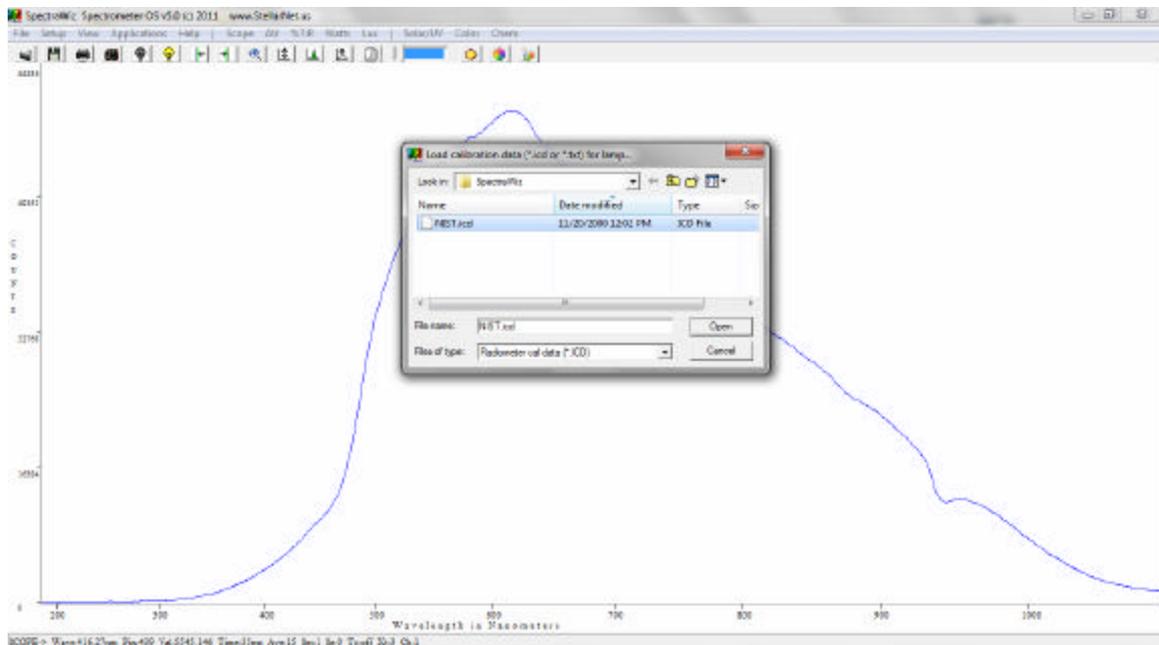
8)   The baseline will then drop to zero.

9)   You will then be prompted to capture the spectrum of the calibrated light

source, using the integration time and other settings that were set in steps 2
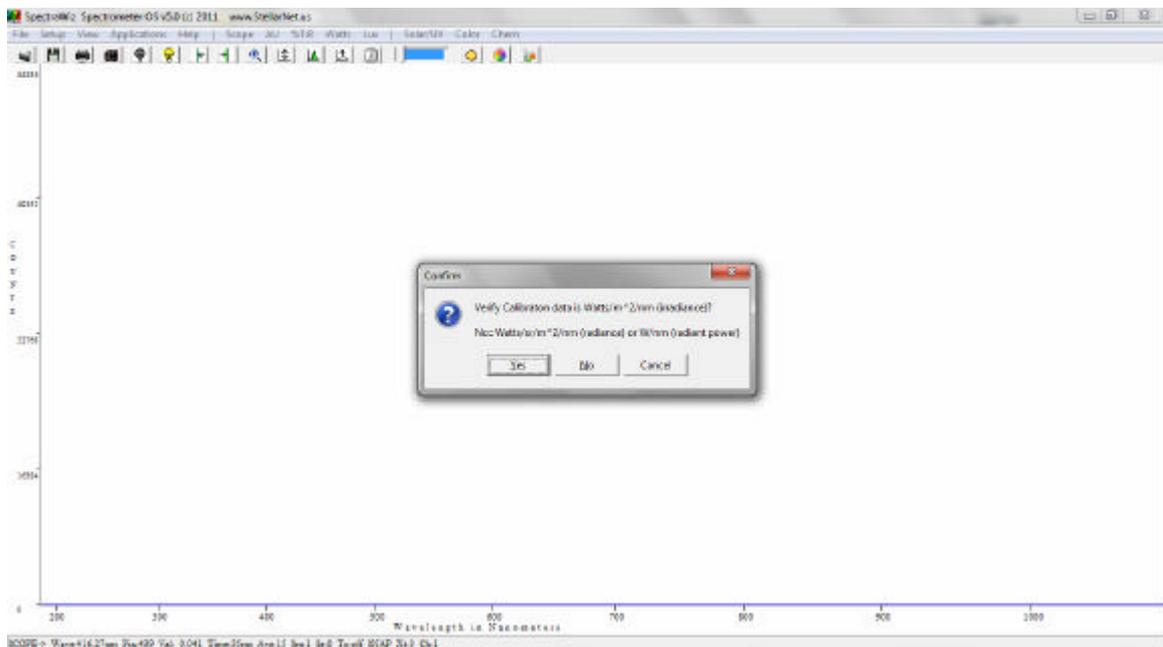
and 3.

10) Capture the spectrum by unblocking the light so that you see the spectrum onscreen again and click the YES button.

11) The software will then prompt you for the lamp calibration file, with the extension ".ICD." This file should be supplied with the lamp, giving a 2-column format of the wavelength and compensated power values in (W/m^2). For the StellarNet model SL1-CAL light source, you will have one file for the inserted position and another for the at plane position.
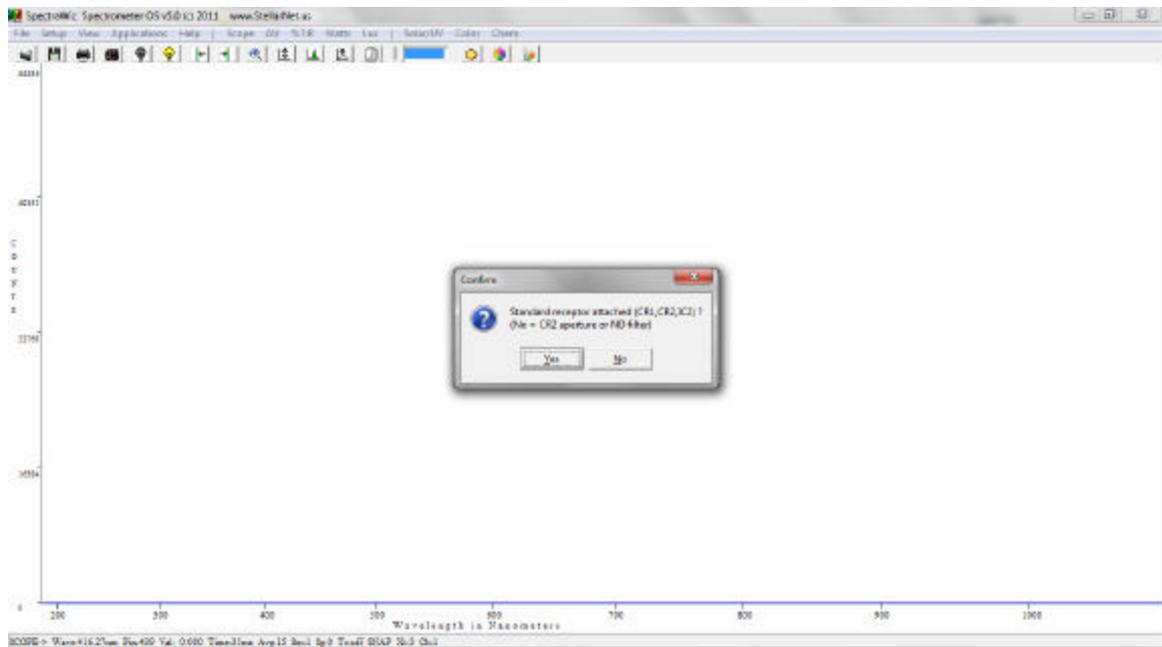
> **NOTE:** If you do not have a calibration file for the lamp, you can use the
> NIST.ICD file contained in the SpectraWiz directory. This will give an
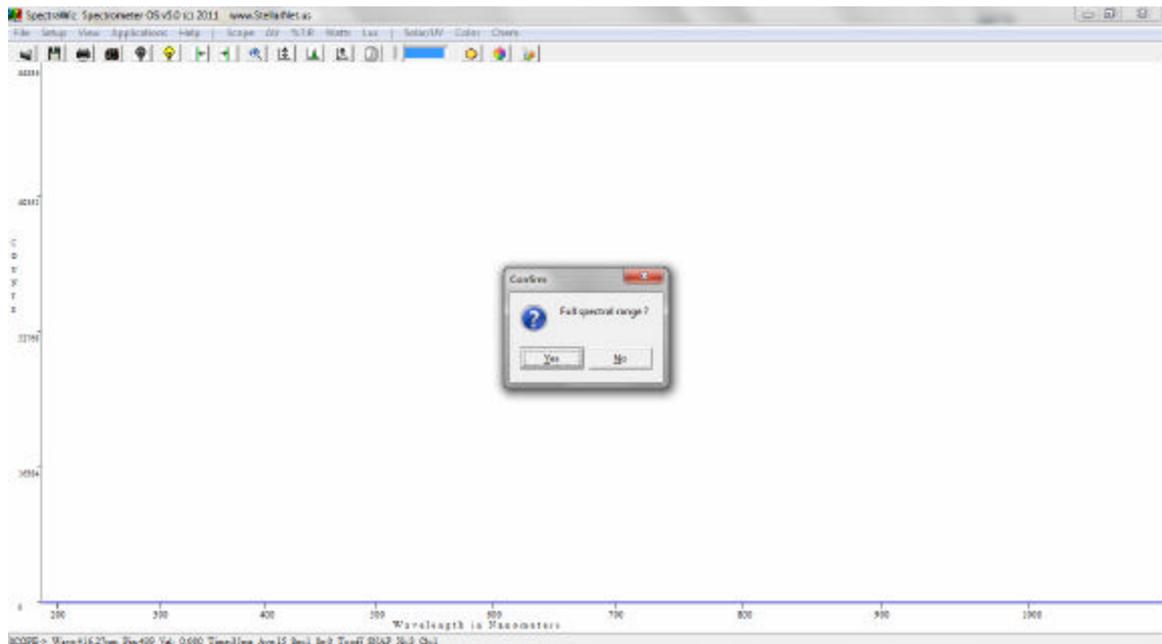> approximate calibration for demonstration purposes only.

12) The software will then prompt you to verify the format of the ICD file. For
most calibrations the format will be in W/m^2, and you should select YES. If
you have a file in another format, click NO to step through the subsequent
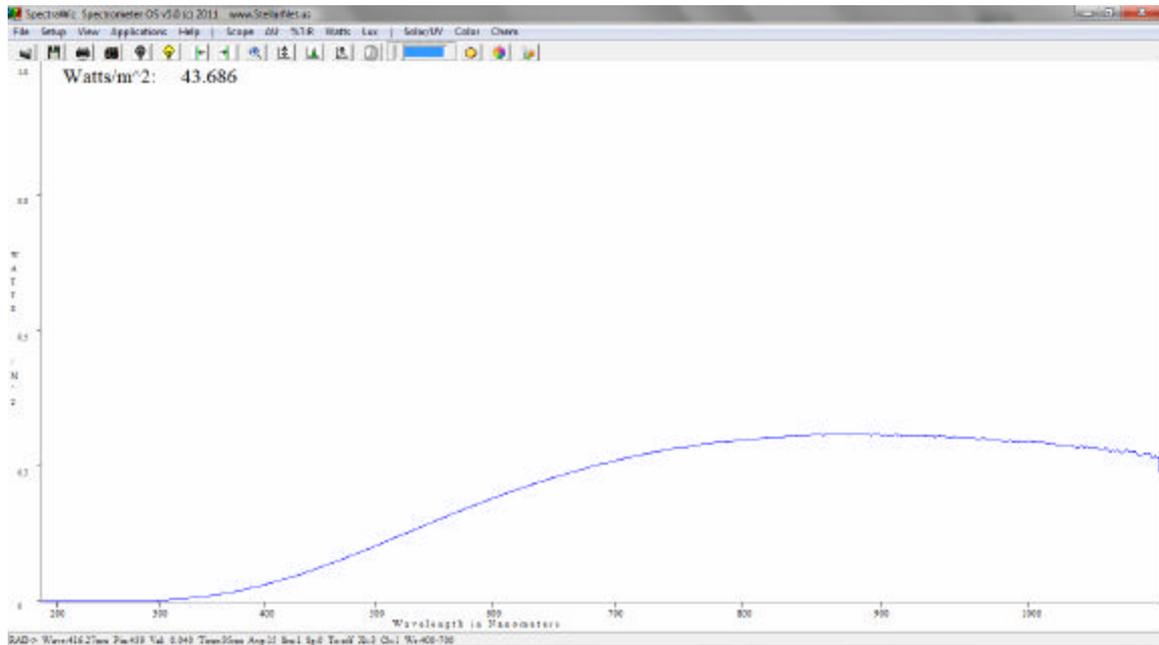prompts and select the correct one.

13) Depending on your spectrometer range, you might then be prompted if you would like to trim the calibration at a certain ending wavelength. This is automatically selected by the calibration software if a significant amount of noise is seen in the 1000-1100nm region.

14) Another prompt will appear asking if a standard collection optic is installed. If you are not using any filters or apertures to reduce the amount of light being collected, click YES. If a neutral density filter or aperture has been installed, click NO and then enter the value of the filter/aperture when prompted.

15)   You will then be asked if you would like to capture the entire spectrum of the

        calibration file used. By clicking NO, you can specify a range (the starting

        and stopping wavelengths can be entered on the next prompt).

16)   The spectrometer is now calibrated and SpectraWiz will then switch to RAD

mode and display the calibrated output of the light source, with the value in

the upper left-hand corner.

17)   It is recommended that you save a copy calibration files in the event it is

overwritten. Do to this, copy the files "sw.ini" and "SW1.icf" contained in

the folder: C:\Program Files\StellarNet\SpectraWiz.