Spectroscopy Ninja presents:

Spectragryph
- optical spectroscopy software -

Calibration Guide

With:

ThunderOptics Spectrometers

Mini & SMA

Using a Fluorescent Lamp

Please, refer to Software User Guide manual, before calibrating the SMA Spectrometer.

Calibration Process

Once you have installed the Spectragryph software and connected the SMA Spectrometer light the calibration source and select the best ROI (Region Of Interest) for your spectrometer. Set the best acquisition time (having saturation may lead to incorrect calibration) and acquire a spectrum :
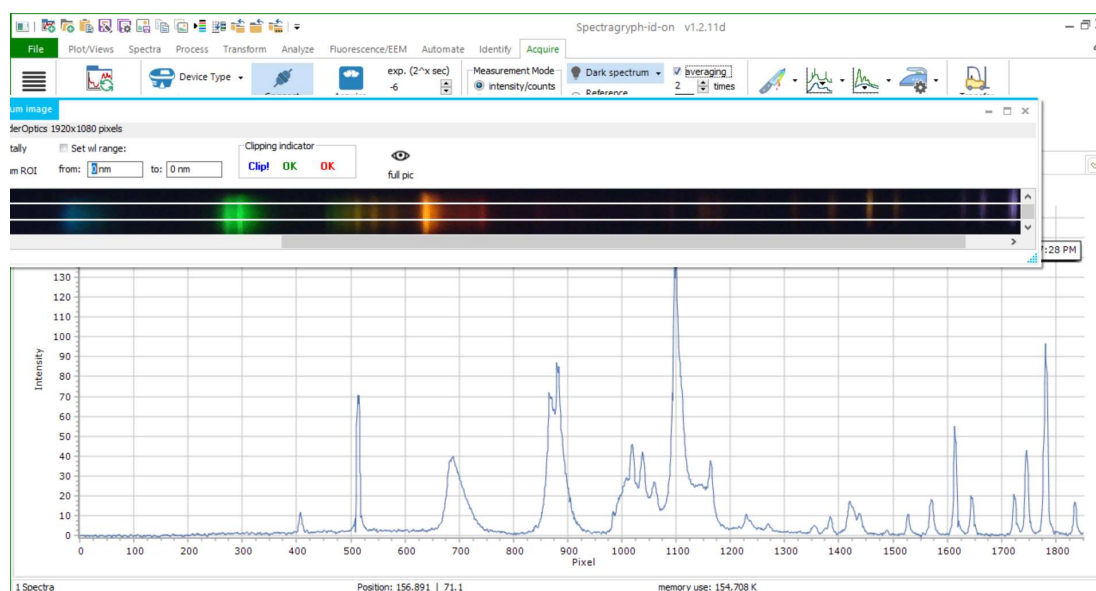

After acquiring an appropriate spectrum, open the calibration dialog from the "*calibr. x axis*" button's drop-down menu.


In the upper field, select the spectrum to be used. Change the peak finding threshold, if necessary. Select the desired x axis type after calibration on the right side. Below are the fields for the calibration coefficients, that result from the calibration process.
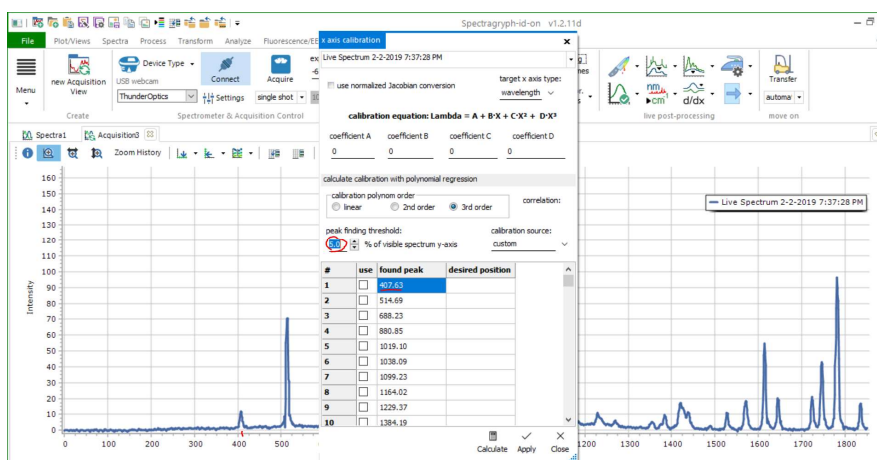
You will get this view:
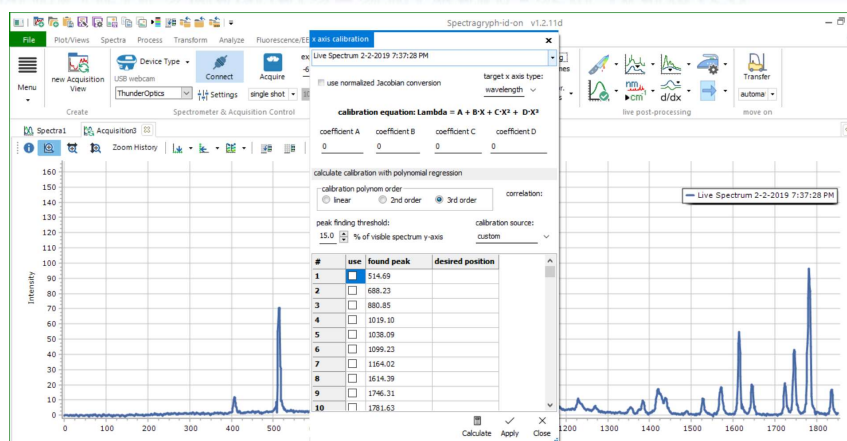
A list of lines will appear in the table. Please, not that not all the lines will be detected by the software. This depends on the "Peak Finding Threshold" which is set automatically to 15%.
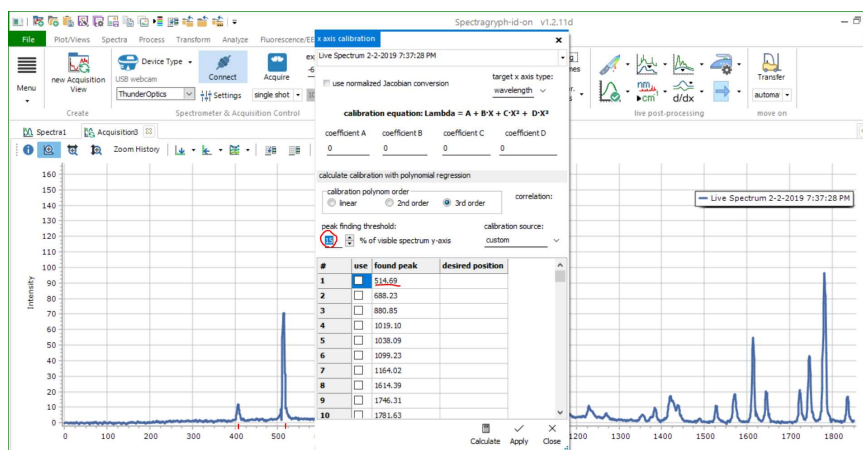
In this case for example, the automatic setting does not detect the structure at 407. But if we lower the threshold to 5% the 407 peak will be detected:
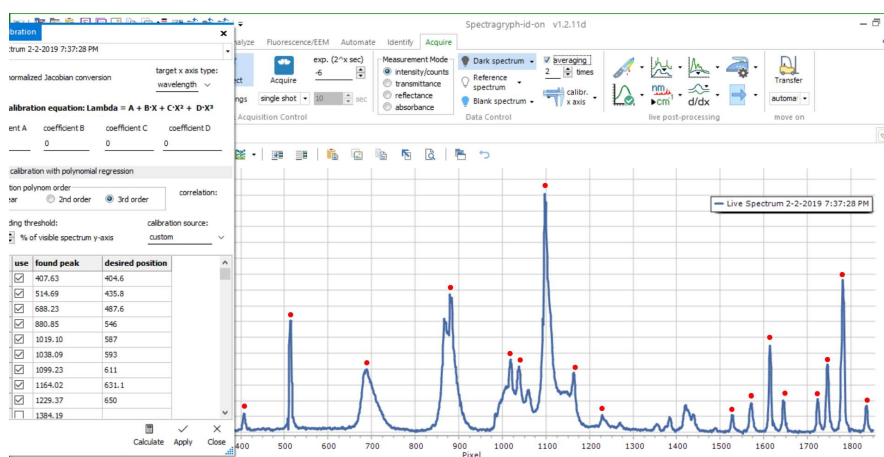
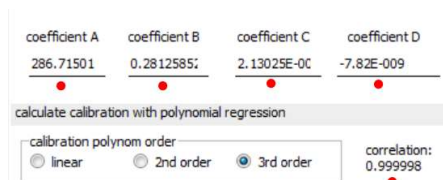Using the reference spectra of an Argon lamp, a Fluorescent Lamp and the table of Argon lines, fill the table of calibration as following. Please, note the preferred lines (red marks) we use for calibration:

Click on "Calculate" to calculate the new coefficients of the calibration, select always a 3rd order for the best results.
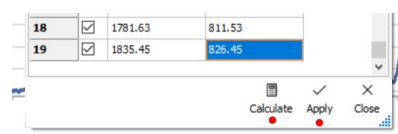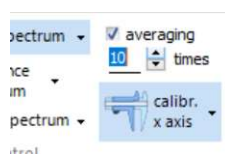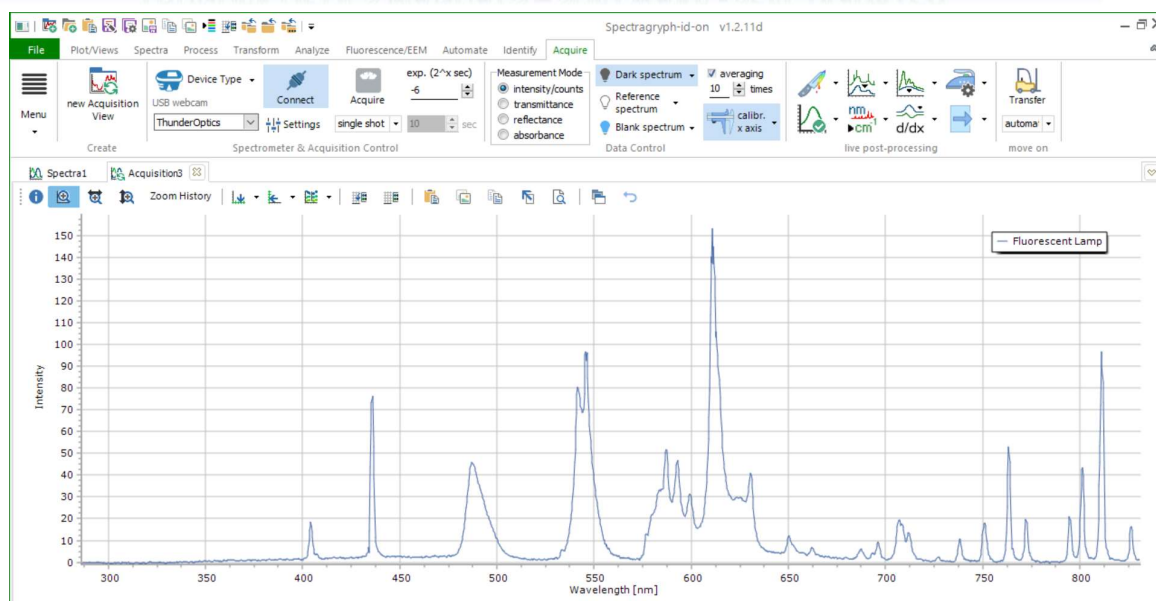

You will get the results:

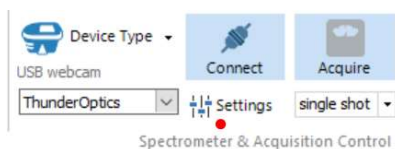Then click on "Apply".

Acquire a new spectrum and click on "Calibr."

The Spectrum is now correctly calibrated:

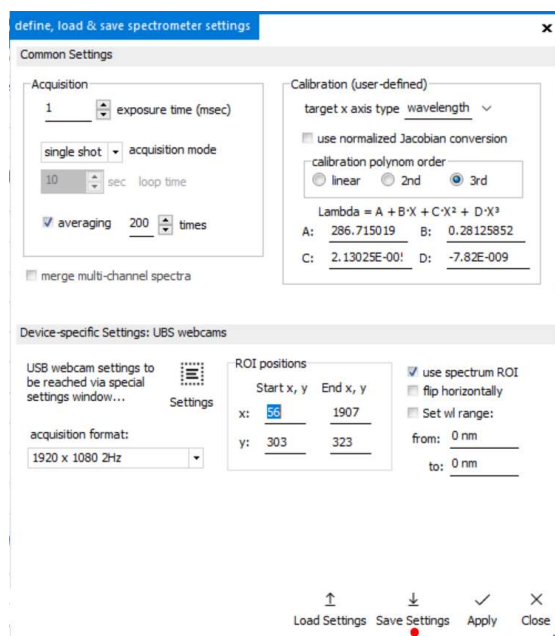The calibration can be saved in a file for a further use. For this clock on "Settings"

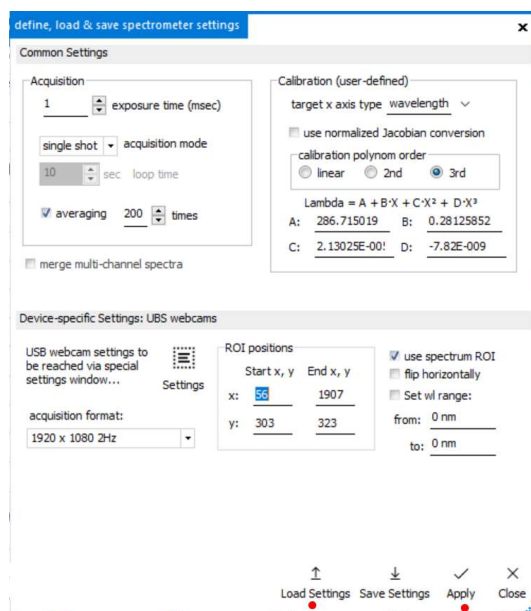Click on save settings, and the file will be saved in the *.sgas* format.

Uploading a Calibration File

If you have purchased a calibrated spectrometer and you want to upload the calibration file or if you want to use a previous calibration you have saved, click on "Settings" and select "Load Settings", load your calibration file (*.sgas) and then click on "Apply".


Automated Uploading of a Calibration File

Here is one function that allows the automated loading of spectrometer settings during connecting and this also include the calibration parameters: just go to options and under Acquisition put the filepath to the settings file into the field near to the respective spectrometer type. Like, it will automatically load on connect, which is a real alleviation.

Annex: Atomic Line Emissions

Argon Lines table

696.543	800.616*
706.722	811.531
714.704	826.452
727.294	842.465
738.398	852.144
750.387	866.794
763.511	912.297
772.376	922.450
794.818	

Argon Emission Lines Spectrum:
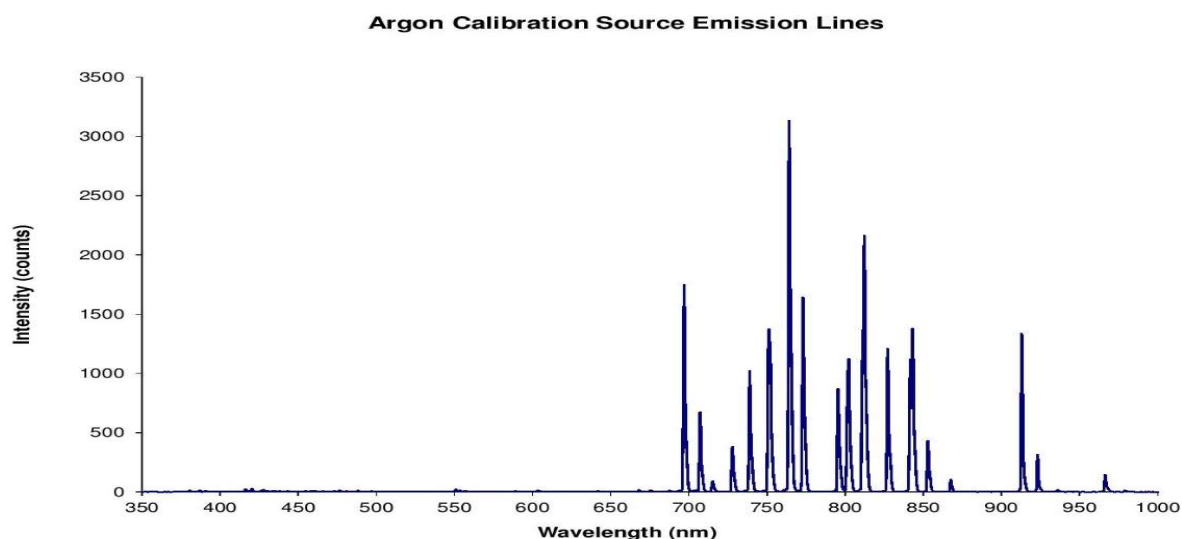
Fluorescent Lamp Spectrum:

Please, note that the reference spectrum published on Wikipedia has some mistakes that we have corrected here.

* Mercury lines