



OceanOptics

Liquids

Sample & Bulk

Spectroscopy Kits

Your experiment will ask you to grab a couple beverages. Here's some beverage-related trivia to test your lab mates:



Who was the inventor of Coca-Cola?

Which type of fruit juice did Dole sell first?

Which citrus soda was Coca-Cola's answer to 7UP?

Which cherry-flavored soda turned 100 years old in 2017?

What was the original name of Diet Pepsi?

What famous phrase is the Kool-Aid Man known for?

What company did Frito-Lay merge with in 1965?

What is the most popular non-alcoholic beverage in the world?

What is the main ingredient in root beer?

Answers at the end





Components



System



Software



Experiment



Liquids
Sample & Bulk



Components

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Software

These spectrometer and light source combos turn optical signals into meaningful numbers.

Spectrometers are powered and interfaced via USB, and light sources require standard power.

Essential | 350-810 nm



ST-VIS



ECOVIS-NIR

Enhanced | 220-1050 nm



SR-2XR



PX-2

Superior | 220-1100 nm



HR-2XR



DH-2000-S-DUV-TTL



Components



System

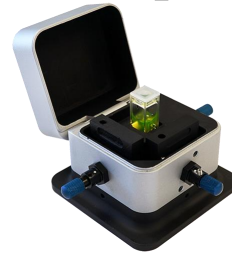


Software



Experiment

Sample



SQ1-ALL

Enable highly repeatable cuvette measurements with this sturdy cuvette holder. Connect fibers to the side ports for transmission readings.



QP600-025-UV

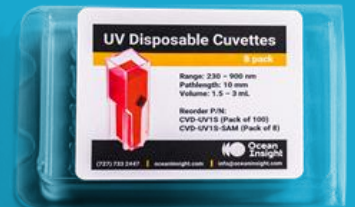
The patch fibers provided with the Liquids Sample Kit connect the cuvette holder to the light source and spectrometer.

Bulk



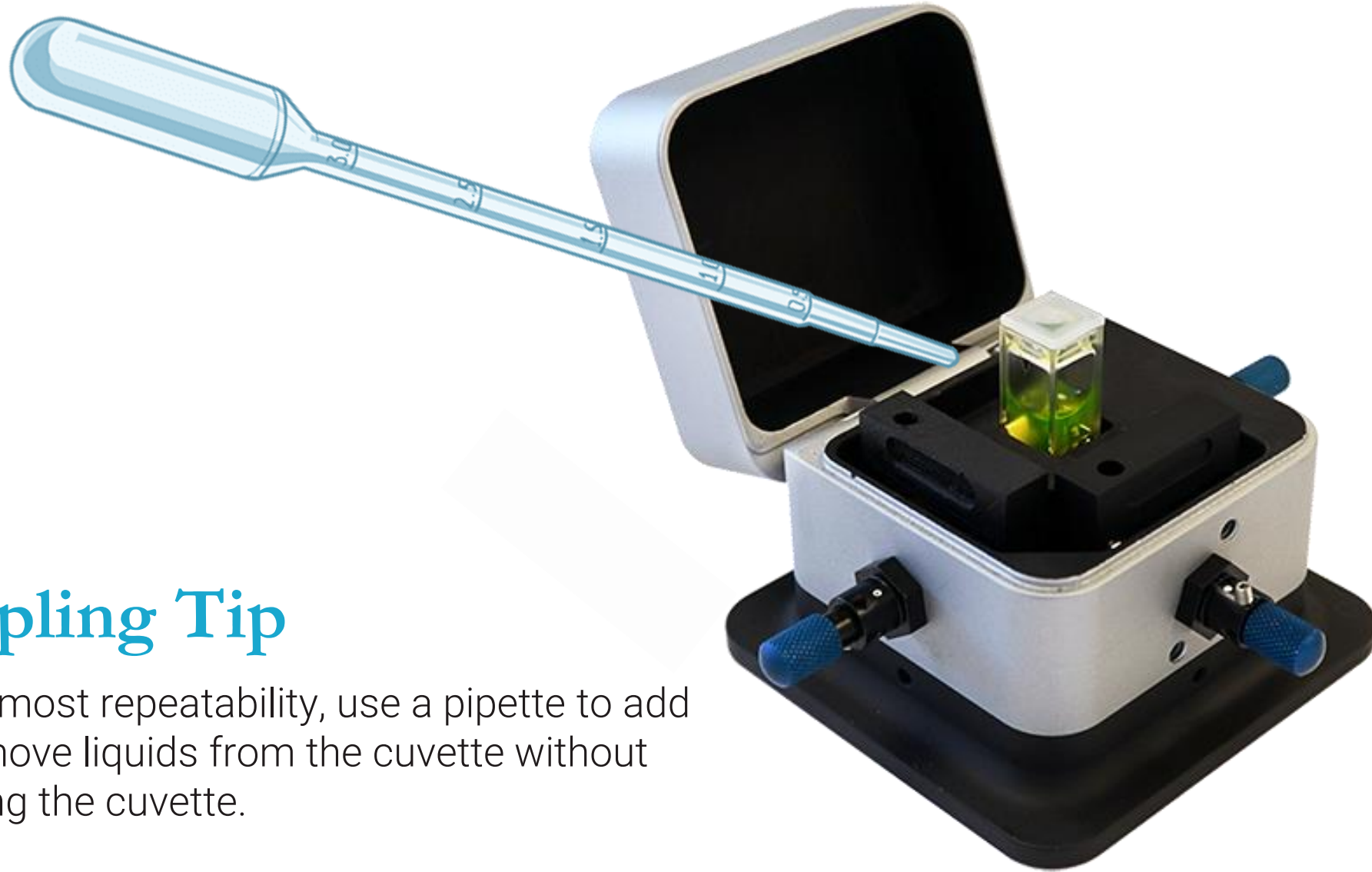
T300-RT-UV-VIS

Dip this probe into your sample solution for transmission readings. Ensure no bubbles are trapped in the optical path by whisking the probe through the fluid.



CVD-UV1S

The plastic cuvettes provided will still transmit UV signals, though quartz will provide even deeper UV readings.



Sampling Tip

For the most repeatability, use a pipette to add and remove liquids from the cuvette without removing the cuvette.

Rinse a couple times by adding/removing the new solution to prevent contaminant signals.



Components



System



Software

Pro Tip: Ensure your SMA connections are tight for repeatable measurements. Loose fiber connections can lead to variable results.

Sample



Use the patch fibers to connect the spectrometer and light source SMA ports to the left and right ports of the cuvette holder.



Place the cuvettes with the transmissive (non-cloudy) sides in the optical path and maintain this same orientation for all measurements for best repeatability.

The standard 1/4" diameter of the dip probe allows for...

HJBS EPRHTGJREAP

EPRA FEFH AG GHJLRAG

LACFGHBBEAP

MERREPTB

Hint: H = E



Components



System



Software

Pro Tip: Use a ring stand or lab clamp to hold the probe in place. To minimize probe movement, you can place the fluid vessel on a removable support to swap fluids while keeping the probe mounted.

Bulk



Connect one probe fiber leg to the light source SMA port, and the other fiber leg to the spectrometer SMA port.



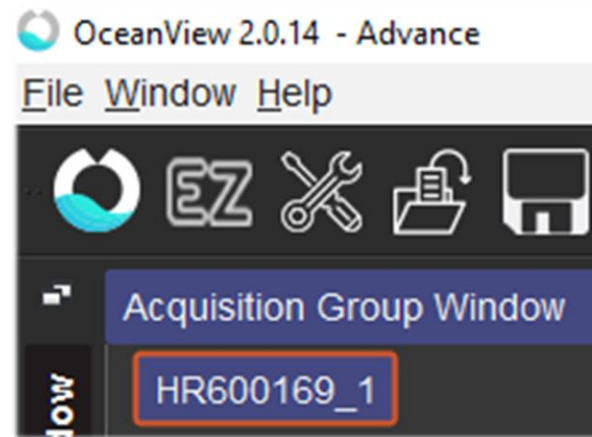
The provided tip provides a 10mm total pathlength, but is only a 5mm gap. This is because the light travels the 5mm distance twice (*there&back*)

Components

System

Software

Experiment



Click the OV icon



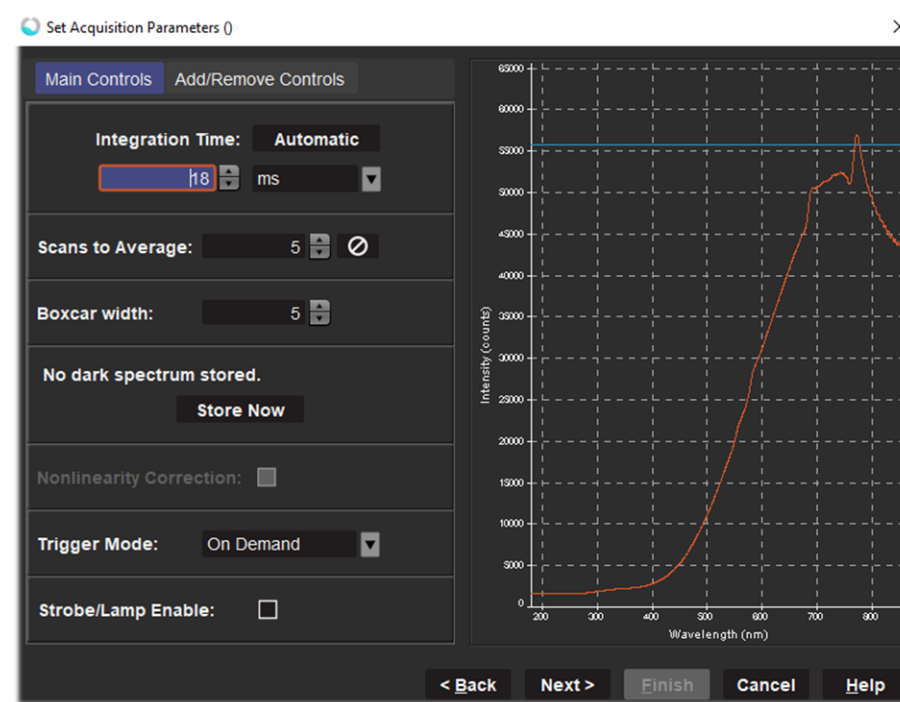
Select Transmission

Components

System

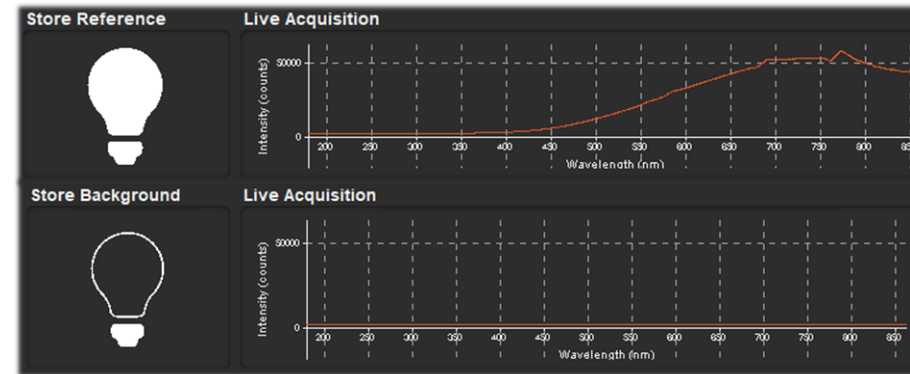
Software

Pro Tip: Scans-to-Average averages individual pixels over time, while Boxcar averages neighboring pixels to smooth the spectrum. The former increases scan time, but the latter does not. However, high Boxcar can begin to mute sharp peaks that may be important to your work.



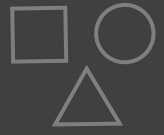
*Total Scan Time =
Integration Time x
Scans to Average*

Hit 'Automatic' button to auto-set Integration Time



Take light reference with light source on and reference fluid present

Take dark/background reference with light source off



Components



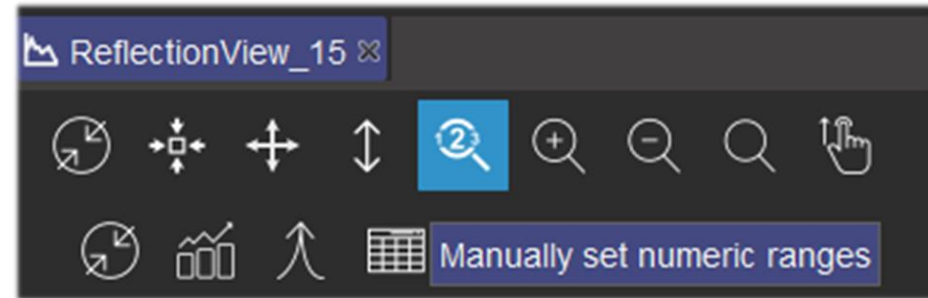
System



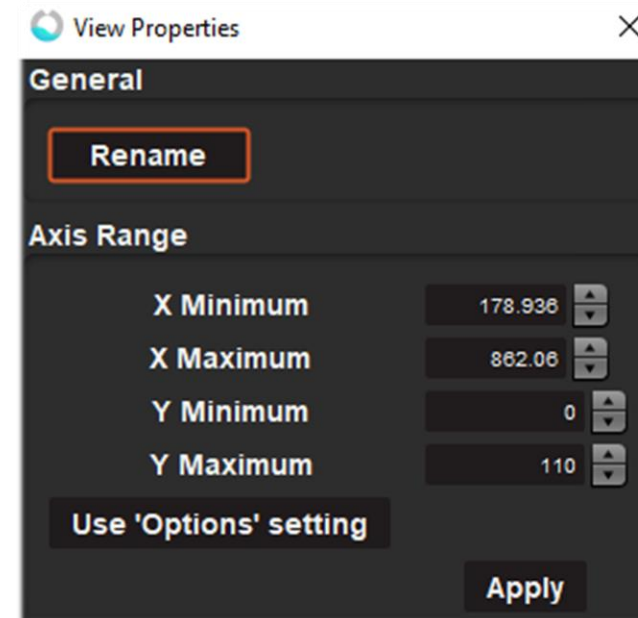
Software



Experiment



Use arrow and magnifying buttons to move and zoom around the graph. The magnifying glass with numbers in it allows you to manually set the x- and y-axis range.



Components

System

Software

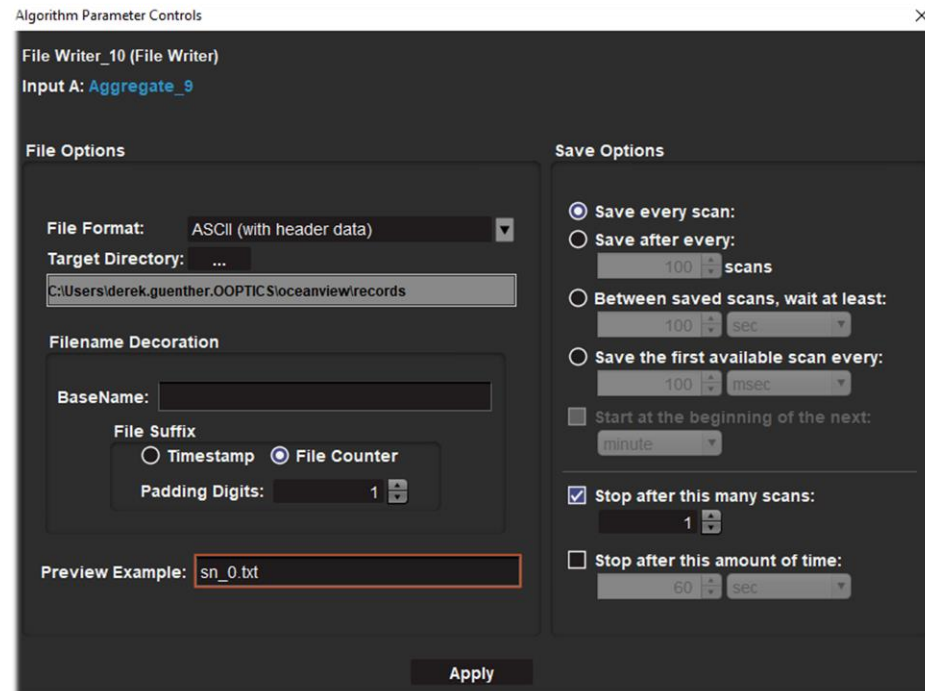
Pro Tip: Standard *ASCII* file type will save each spectrum to an individual file in column format. Changing File Format to *Time Series* or *Append Series* will place all spectra in a single compiled file in row format.



Select the gear icon to configure data save parameters.

Configure your file format, location, and naming convention on the left.

Configure the frequency and intervals of data logging on the right.



Don't forget to press 'Apply' before exiting!



Try a blind taste-test with your lab mate using the beverages you picked for the Sample Experiment...plus a mix of the two to really confuse them!



1 Assemble System and Complete Transmission Wizard

from prior steps
use water as reference fluid

2 Grab Your Favorite Beverages



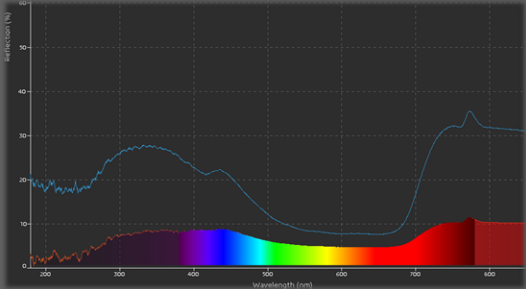
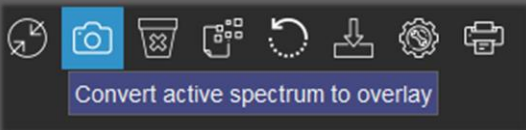
Sample

Use pipette to remove water reference and add beverage sample

Bulk

Dip probe in beverage and swirl to remove bubbles

3 Click Camera icon to freeze overlay

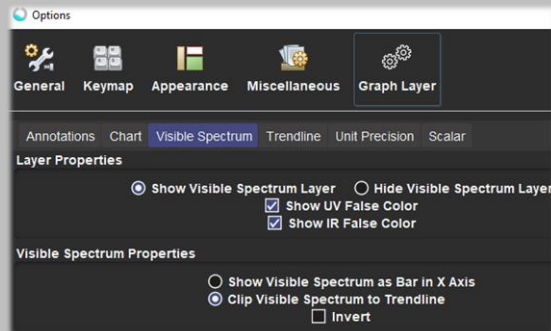


4 Change the beverage. Take a new overlay.

What regions transmit more? Less?

5 How do the transmissive regions compare to the visible color of the beverage? Are there any surprises?

Pro-Tip: To see the full ROYGBV spectrum in the graph, right-click in the graph and go to Graph Layer Options. Go to Visible Spectrum and select Show Visible Spectrum Layer and Clip to Trendline.



Experiment



Spectroscopy Kits

Liquids

Solids

Plasma

Techniques

Applications

	Transmission	Reflection	Absorbance / Concentration	Relative Irradiance	Fluorescence	Color	Bio Fluids	Pharma Fluids	Medical Dyes	Bulk Vessels	Industrial Aqueous Fluids	OES
Liquid Essential Sample	█		█			█	█	█	█		█	
Liquid Enhanced Sample	█		█			█	█	█	█		█	
Liquid Superior Sample	█		█		Filter/LED Req'd	█	█	█	█		█	
Liquid Essential Bulk	█	█	█		Filter/LED Req'd	█	█	█	█	█	█	
Liquid Enhanced Bulk	█	█	█		Filter/LED Req'd	█	█	█	█	█	█	
Liquid Superior Bulk	█	█	█		Filter/LED Req'd	█	█	█	█	█	█	
Solid Essential Sample		█	█	█	Filter/LED Req'd	█		█				
Solid Enhanced Sample		█	█	█	Filter/LED Req'd	█		█				
Solid Superior Sample		█	█	█	Filter/LED Req'd	█		█				
Solid Essential Bulk		█	█		Filter/LED Req'd	█		█	█			
Solid Enhanced Bulk		█	█		Filter/LED Req'd	█		█	█			
Solid Superior Bulk		█	█		Filter/LED Req'd	█		█	█			
Plasma Essential			█	█	█	█						█
Plasma Enhanced			█	█	█	█						█
Plasma Superior			█	█	█	█						█
Plasma Essential FL-Sample	█		█		█	█	█	█	█		█	█
Plasma Enhanced FL-Sample	█		█		█	█	█	█	█		█	█
Plasma Superior FL-Sample	█		█		█	█	█	█	█		█	█
Plasma Essential FL-Bulk		█	█		█	█	█	█	█	█	█	█
Plasma Enhanced FL-Bulk		█	█		█	█	█	█	█	█	█	█
Plasma Superior FL-Bulk		█	█		█	█	█	█	█	█	█	█



Trivia Solutions:

John Pemberton

Pineapple juice

Sprite

Cherry Coke

Patio Diet Cola

"Oh yeah!"

PepsiCo

Tea

Sassaparilla root

Crypto-Quiz Solution:

EASY INTEGRATION INTO PIPE OR

REACTOR COMPRESSION FITTINGS



OceanOptics

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