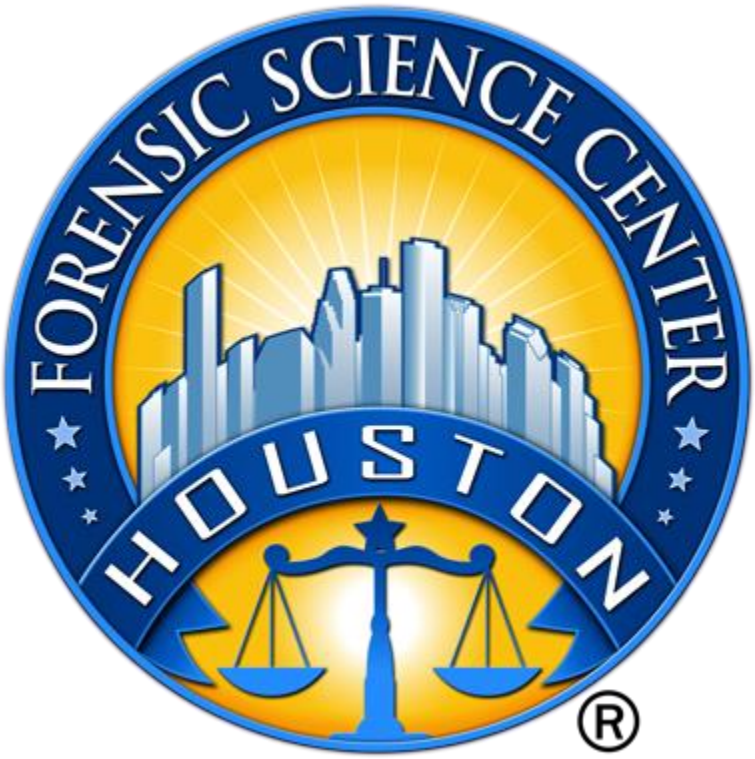

Seized Drugs
Operational Guidelines for the Shimadzu UV/VIS

Comparative and Analytical Division

SHIMADZU
ULTRAVIOLET/VISIBLE SPECTROPHOTOMETER (UV/VIS)

Instrument

Shimadzu UV-2401 UV/VIS Spectrophotometer (Serial Number A10834132034)

Software

UVProbe version 2.21

Instrument Startup:

1. Turn on the instrument, the computer (if necessary), the monitor, and the printer. Allow the instrument to warm-up for ~15 minutes before proceeding.

2. If a window appears that requests a password click **OK**. Do not enter any information.

3. Open the UVProbe software from the desktop icon.

4. Ensure there are no cuvettes in the instrument, then click on the **Connect** button near the bottom of the control panel to begin the instrument initialization sequence.

5. When the initialization is complete review the results on the screen and note any parameters which **Fail** (red marks appear). If all parameters **Pass** (green marks appear), then click **OK** and note the initialization in the logbook. If any of the parameters have failed, then consult the Troubleshooting Section 4.2 of the Manufacturer's Instruction Manual (book 1 of 2) for remedial action. If corrective measures do not correct any problems, then consult with the assigned analyst(s), Section Manager, Section Supervisors, or designee and take the instrument off-line until the issue can be resolved.

6. After successful initialization, click the **Baseline** button on the control panel to set the baseline for the instrument. Make sure that there is not a cuvette in the sample holder, and that the parameters are set to start at 340nm and to end at 220nm, then click **OK**. Note the baseline run along with the time in the logbook.

7. The instrument is now ready to acquire data.

Instrument Shutdown:

1. Close the UVProbe software by clicking the **X** box at the far top right of the screen.
2. A window will appear stating there is unsaved information; click the **Yes** button.
3. Turn the instrument, the computer monitor, and the printer off. Turning the computer off is optional.

Data Acquisition:

1. Prepare the sample cuvette and place it in the sample cell (towards the front of the instrument).
2. Fill another cuvette with neat preparation solvent and place it in the reference cell (towards the back of the instrument).
3. Click the **Start** button.
4. When the New Data Set window appears you may enter your initials in the analyst field and the case number in the comments field, then click **OK**. If you click **Cancel** the data will be deleted.
5. Click the **Peak Pick** button (fourth button from the right on the toolbar).
6. Right click in the peak pick area and uncheck **Show valleys**. This will remove the absorbance Minima data from the chart.
7. If all the peaks of interest are not labeled then right click on the peak field and click **properties**. Enter the number 1, 2, or 3 in the points field and hit enter.
8. To obtain a background absorbance click on the **Go To WL** button on the lower control panel and enter the desired wavelength, then hit enter. The absorbance value for the wavelength is displayed on the screen. **NOTE: This function will work only if your sample is still in the instrument.**
8. If this is the first analysis of the day click the **file** button, then **properties**. Click the **Disabled** button for "Store All Data in a Single File", then click **Close**.
9. Click the print button to print the report.

Changing Wavelength Range:

1. To scan across a different wavelength region (e.g. 300nm to 190nm for GBL analysis) click the **"M"** button (seventh button from the right on the toolbar) and enter the desired start and end wavelengths in the appropriate fields. Then click **OK**. Do not change any other values.

2. Perform a baseline scan on the new wavelength values before proceeding with the analysis.

3. When you are finished with your analysis, reset the parameters to start at 340nm and end at 220nm via the **"M"** button.

4. Perform a baseline scan on the standard wavelength region.

Instrument Performance Check (performed quarterly or as needed):

1. Follow the routine **Startup** procedures before performing the Instrument Performance Check.

2. Check the wavelength accuracy by using the two characteristic wavelength peaks of deuterium light at 486.0 nm and 656.1 nm. See the Periodic Maintenance Section 4.1 of the Manufacturer's Instruction Manual (book ½) to reference the following procedure:

   A. Click the **"M"** button on the toolbar to modify the Method parameters as follows:

      1. Select the Instrument Parameter tab
         a. Change the measuring mode from Absorbance to Energy
         b. Leave slit width at 0.2 nm
         c. Change source lamp from off to D2
         d. Change PM gain from 0 min to 2 min

      2. Select the Measurement tab
         a. Change wavelength from 340 – 220 nm to 660 – 650 nm
         b. Change scan speed from fast to medium
         c. Change sampling interval from 0.5 to a checked auto box
         d. Click **OK**

   B. Ensure that the cell holders are empty and click the **Start** button.

C. When the scan is complete, the analyst's initials and the following info may be noted in the comment box:

Wavelength Accuracy Check
Pass Range = 655.6 – 656.6 nm

Click **OK**.

D. Adjust the plot so that the 656 peak is on scale.

E. Right click in the Peak Pick box and uncheck **Show Valleys**.

F. Right click in the Peak Pick box and select properties. Ensure that Interpolate is not checked. Note the current threshold setting (usually 0.01) and adjust the threshold so that only the 656 peak is identified (usually 1).

G. Click **Print** and initial the printout.

H. Follow the above procedure for the wavelength range 490 – 480 nm.

I. When the scan is complete, the analyst's initials and the following info may be noted in the comment box:

Wavelength Accuracy Check
Pass Range = 485.5 – 486.5 nm

Click **OK**.

J. Adjust the plot so that the 486 peak is on scale.

K. Right click in the Peak Pick box and select properties. Ensure that Interpolate is not checked. Adjust the threshold so that only the 486 peak is identified (usually 3-5).

L. Click **Print** and initial the printout.

M. Click the **"M"** button on the toolbar and return the Method parameters to normal values (see A.1. and A. 2.)

N. Re-run the baseline.

O. Right click in the Peak Pick box and adjust the threshold to the original value (see F.)

3. To pass the performance check, the two peaks should lie within the specified ranges.

4. If the instrument fails the performance check, then consult with the assigned analyst(s), Section Manager, Supervisors, or designee and take the instrument off-line until the issue can be resolved. If necessary, contact the Shimadzu service representative to perform necessary maintenance.

5. Record the Instrument Performance Check results in the logbook as well as any maintenance performed. Store the printouts in the appropriate location.

MODIFICATION SUMMARY

ISSUE DATE	CHANGE
Current Version	Modifications to this version include the following changes: Changed "Controlled Substances" to "Seized Drugs" in reference to the name of the section Changed the title from "Controlled Substances Training Guide Supplement Guidelines for Operation of the Shimadzu UV/VIS" to "Operational Guidelines for the Shimadzu UV/VIS" Added the document ID number
10-20-14	Modifications to this version include the following changes: Instrument Startup step 5 "(book ½)" changed to "(book 1 of 2)" Instrument Startup step 6 updated Changing Wavelength Range step 5 removed Instrument Performance Check steps 2C, 2F, 2G, 2I, 2K, and 2L updated to include expansion of the acceptance range for UV quarterly checks to 655.6 - 656.6 nm and 485.5 - 486.5 nm per manufacturer's recommendations Addition of the Modification Summary

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