

NanoDrop Ultra Spectrophotometers and Fluorometers

Pedestal absorbance measurements

Introduction

Recommended Schedule: Every 6 months.

A vial of PV-1, {aqueous nicotinic acid ($C_6H_5NO_2$), potassium nitrate (KNO_3)}, is required to verify the performance of the pedestal of the Thermo Scientific™ NanoDrop™ Ultra, NanoDrop Ultra^c, NanoDrop Ultra FL, and NanoDrop Ultra^c FL microvolume UV-Vis spectrophotometers and fluorometers.

Materials needed

- Lint free laboratory wipes
- Deionized water (diH_2O)
- Calibrated precision pipettor (0–2 μ L)
- PV-1 solution {aqueous nicotinic acid ($C_6H_5NO_2$), potassium nitrate (KNO_3)}


Ensure pedestals are clean and conditioned

1. Clean both upper and lower pedestal surfaces using a dry, lint free laboratory wipe.
2. Pipette 1 μ L diH_2O onto the lower pedestal surface and visually inspect droplet. If pedestal surface is properly conditioned, water sample will “bead up”.

Note: When the hydrophobic properties of the pedestal surfaces have become compromised droplet will “flatten out”, refer to the Pedestal Cleaning and Reconditioning procedure.

3. Remove the water sample from the upper and lower pedestal surfaces with a dry laboratory wipe.

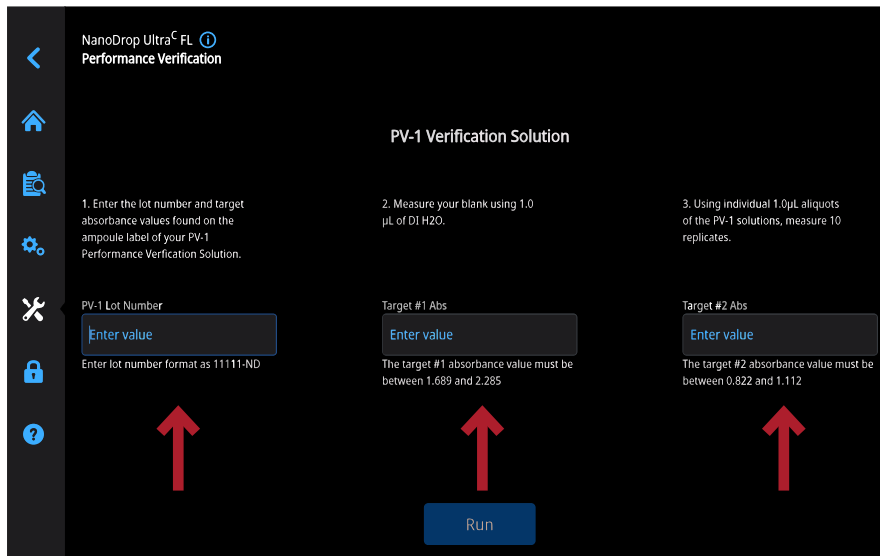
Performance verification procedure

1. From the home screen, select the **Diagnostics** icon , followed by **Performance Verification**.
2. Select the **PV-1 Lot Number** entry box. A keypad will be displayed if using the local control software.
3. Enter the lot number of the PV-1 ampoule (found on the PV-1 ampoule label) that is going to be used for this test. Select **Done** to close the keypad when using the local control software.



Note: Ensure the PV-1 ampoule has not yet expired.

4. Select the **Target #1 Abs** entry box.
5. Enter Target Absorbance Value **#1** (found on the PV-1 ampoule label).
6. Repeat steps 4 and 5 for the **Target #2 Abs** entry box, using Target Absorbance Value **#2** found on the PV-1 ampoule label.

Note: Target Abs. values are lot specific and must be entered into the correct, corresponding entry box (see example below).





7. Once the target values have been entered, select **Run**.
8. Pipette 1 µL diH₂O onto lower pedestal.

Note: If the **Auto-Blank** feature is OFF , select **Blank** to begin the measurement. If the **Auto-Blank** feature is ON , the measurement will begin automatically after the arm is lowered.

9. Remove excess diH₂O from upper and lower pedestal surfaces using a clean, dry laboratory wipe.
10. Ensure PV-1 solution is thoroughly mixed by vigorously shaking/inverting the ampoule taking care to not introduce bubbles. Allow the solution to collect in the bottom portion of the ampoule, if needed gently tap or flick the ampoule.

Note: The PV-1 Performance Verification Fluid is supplied in a single-use vial. The PV-1 must be used within one hour of opening the vial.

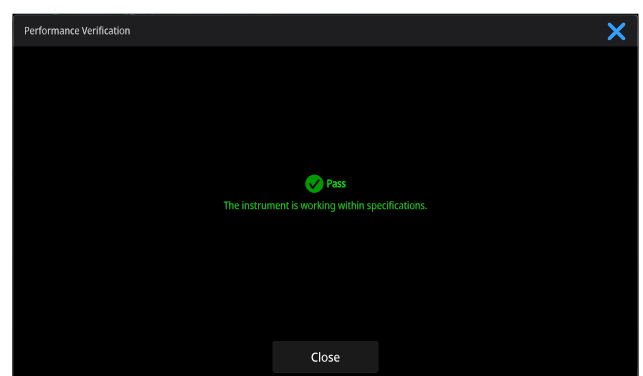
11. Carefully snap off top portion of ampoule using plastic ampoule cracker, discard top along with ampoule cracker (use proper safety precautions for disposal).
12. Withdraw 1 µL of the PV-1 solution from the ampoule, pipette onto lower pedestal, lower arm.


Note: If the **Auto-Measure** feature is OFF , select **Measure** to begin the measurement. If the **Auto-Measure** feature is ON , the measurement will begin automatically after the arm is lowered.

13. After the measurement is complete, remove sample from both upper and lower pedestal using a dry laboratory wipe.
14. Repeat steps 12 and 13 to measure nine additional individual replicates of the PV-1 solution (following the on-screen prompts).
 - Always use a fresh 1 µL aliquot of PV-1 for each measurement.
 - In between each measurement, remove PV-1 solution from both pedestals using a dry laboratory wipe.


15. After each measurement is complete, the individual results will be displayed on screen and subsequently added to the existing results.

16. After the ten replicates have been measured the overall result of the Performance Verification will be displayed on screen. To the right is an example of what would be seen after a passing test. Select **OK** or **Close** to see a more detailed summary of the results.



17. Select **End Experiment** when done.
18. The experiment name can be changed at this time and up to five unique identifiers/tags can be added, once complete, select **Next**.
19. Results can be exported and printed at this time by selecting **Continue** or at a later time from the History.
 - After exporting or printing, select **OK** to go back to the Diagnostics screen.
20. If results do not need to be exported or printed, select **Finish** to return to the Diagnostics screen.
21. To review results from a previous Performance Verification, select the **History** icon  from the home screen and locate the Performance Verification results from the list of experiments.

Interpreting the results

1. The overall result of the test will be displayed at the top of the screen as a Green “Pass”/ Orange “Conditional Pass”/ Red “Fail”.
 - If results are not within specifications, repeat procedure using 2 μ L aliquots of PV-1.
 - If results fail to meet specifications using 2 μ L aliquots, contact technical support or a local distributor for assistance.
 - A conditional pass means that the instrument is working slightly outside of our factory specifications, but not yet failing. With a conditional pass it is left up to the end users to determine if those results are acceptable for their purposes.
2. When using the local control software, slide your finger to the left across the screen or press the middle or right bubbles  at the bottom of the screen to display more detailed information including % Error and Standard Deviation.

