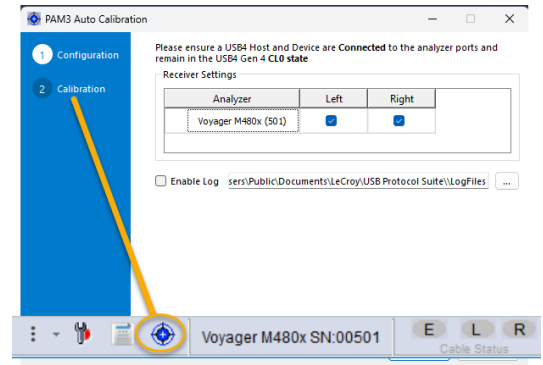


Troubleshooting Voyager M480x Capture Issues

Overview: The Voyager M480x requires running the Auto-Calibration process before capturing Gen4 traffic (PAM3). Advanced algorithms are used to intelligently identify the optimum calibration settings. Significant efforts are underway to improve these algorithms. The calibration process can take 20 to 60 minutes to complete (depending on signal integrity). Changing any cable or device in the path is expected to require re-calibration.

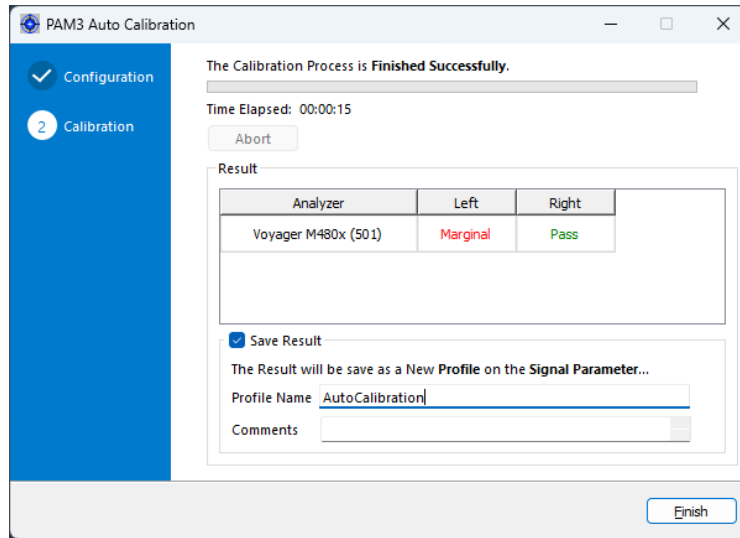


Calibration Steps

1. Use the provided Teledyne LeCroy cables below:
 - Type-C to Type-C 0.3m 40Gb/s unmarked (part number: USB23CAB-X rev b)
 - Type-C to Type-C 0.3m USB4 40Gb E-marked EPR 240W (part number: USB27CAB-X rev b)
2. Ensure that host and device router successfully establish a PAM3 link (CL0):
 - Windows: verify using Device Manager window.
 - Mac OS: verify using “80 Gb/s” link indicator in the System Information window.
 - Alternatively, capture a trace and check the PD and SBU messages to verify that USB4 Gen 4 was entered.
3. Ensure that the link remains in CL0 and low power states are not entered.
 - Vendor specific tools may be needed to disable low-power in the host system BIOS.
4. Open the calibration window and click the Next button to begin calibration process. After successfully completing calibration, take a trace to verify the calibration process has captured clean traffic.
5. Once stable settings are determined, these parameters will remain the “active profile” (including through power-cycle of the Voyager M480x platform) until a new calibration session is run; or the user manually loads a previously saved profile.
6. Use the Save Profile option to preserve successful settings for future use with the same setup.
7. Changing any cable or device in the path is expected to require re-calibration of both sides of the link (anything that affects the through-path could require re-calibration).

Troubleshooting:

1. If the calibration process fails to capture clean traces:
 - Repeat the process to try and resolve the issue.
 - Try changing the port the host / device router is connected to (on the analyzer) from 'left' to 'right'.



- The table below summarizes the calibration scores:

Calibration score:	
"Marginal"	Indicates that the calibration utility wasn't able to find parameters that will allow it to capture clean Gen 4 traffic.
"Pass"	Indicates the analyzer is receiving relatively good eye height & width; 0 to 8 uncorrectable FEC errors (FEC block / per second).

2. If Auto-calibration is repeatedly unsuccessful, re-run the calibration with "Enable Log" checked. Send log to Teledyne LeCroy to generate a support ticket: PSGsupport@teledynelecroy.com. The log files are located in the public folder: C:\Users\Public\Documents\LeCroy\USB Protocol Suite\LogFiles (unless changed by user). Provide as much information as possible about the setup (e.g., which UUT host/device; configuration of host/device (on right or left port), and exact cables used. Any other observations: Did calibration complete or abort? Did UUT setup remain in CLO?

Frequently Asked Questions

- 1. If changing the UUT devices, will the M480x automatically use the calibration parameters generated previously?**
 - a. If changing any components in the UUT setup, it is necessary to load a previously successful calibration profile or re-run the calibration. The analyzer mode will always default to last active profile. If a previous calibration profile was saved on the PC, it is necessary to manually load the desired profile. Go to Setup>Signal Parameters window; select the profile; then use the Save & Apply button to activate the desired profile.
- 2. Upon completion of a successful calibration for a new UUT, will this overwrite the calibration settings for the previous UUT if I don't change the profile name?**
 - a. The Analyzer mode will always default to last active profile. Subsequent calibrations shouldn't overwrite any existing profiles. Even if user accidentally saves the resulting calibration using the same name as an existing profile, a number should get appended to differentiate it.
- 3. While trying to run calibration for the Gen 4, the link-under-test resets many times?**
 - a. During calibration, it is expected behavior that the M480x may drop the link between host and device multiple times to reset the scrambler. In some cases, it has been observed that the Mac OS may restart the system during the calibration sequence. This issue has no significant effect on calibration or the Mac OS system.
- 4. When is it appropriate to calibrate only the left or right port?**
 - a. It is possible that a single channel (left or right) will report “marginal” result from the calibration process. Selecting only the marginal channel and re-running calibration may allow shorter run-time. If the marginal result persists, switching the device to the opposite port on the analyzer may help; but in this scenario, it is required to “re-calibrate” both ports.
- 5. Is it possible to share a Profile with other development teams?**
 - a. Calibration profiles are “analyzer specific” and may not be interchangeable with other M480x analyzer systems. Even when the UUT devices are exactly the same, sharing profile parameters from a different M480x should not be expected to work seamlessly. However, profiles may be exported for use on multiple PCs sharing the same analyzer.