

PSA 5.3.03 Release Notes

The PSA 5.3.03 Release Note is applicable to the PSA-3000 and PVA-3000 family of test instruments.

Highlights

The PSA 5.3.03 release introduces some small but important enhancements to the **PHY Performance Test Suite** for the PVA-3000. In the Basic Capabilities results, the **STABILITY** parameter is now derived from a vastly more repeatable and reliable test logic and also includes an explanation field titled **STABILITY DETAILS**. This parameter warns of 10/100/1000 ports that require extraordinary adaptations in the PVA test port in order to facilitate link-ups and therefore may pose interoperability challenges in certain applications. In the 1000Base-T transmitter test results, the flag field warning of proprietary 1000Base-T transmit power adaptation to link length has been enhanced to also utilize more robust detection logic and to report whether the power adjustment by the port-under-test responds to high incoming receive power or more direct cable length measurements. These enhancements are accompanied by two new Application Notes addressing these topics as they relate to certain industry 10/100/1000 transceivers.

PSE Conformance Test Suite Tracking Service

The PSA 5.3.03 release utilizes the same product keys for the 2-Pair and 4-Pair PSE Conformance Test Suites as were published for the PSA 5.3.02 release in early April, 2023.

EA Gen1 and Gen2 Certification Testing

PSA software version **5.3.01** was EA certified for 1st party Gen1 (802.3at) and Gen2 (802.3bt) certification testing. Sifos does not plan to re-certify this release as there was only minor impact to the PSE Conformance Test Suites.

PSA 5.3.03 Enhancements

Software Entity	Impact	Feature
2-Pair PSE Conformance Test Suite	Minor	det_v : Enhanced logic that produces the Detect_Strategy parameter so that it would properly and reliably characterize certain PSE's with very narrow open circuit pulses as PRE_DET_ONLY (Strategy #1).
	Minor	det_rsource : Enhanced to mitigate meter resolution limitations when evaluating PSE's with Zout right at the 45KΩ limit.
4-Pair PSE Conformance Test Suite and Associated Waveforms	Moderate	class_response will report proper event counts when a PSE powers an emulated single signature PD with just one pairset while performing classification on the opposite (unpowered) pairset. Previously, this scenario would result in bad event counts and misinterpretation of PSE assigned class.
	Minor	det_rsource : Enhanced to mitigate meter resolution limitations when evaluating PSE's with Zout right at the 45KΩ limit.
	Minor	Inrush Waveforms (and pwrup_inrush test): The 5.3.02 release introduced an enhancement to allow the lag time between dual signature pairset power-ups to extend up to 35 seconds, but that change was only applied to Voltage waveforms. In 5.3.03, it is also applied to Current waveforms.

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Software Entity	Impact	Feature
PHY Performance Test Suite	Important	<p>pva_caps and the associated standard test reporting modified to utilize information from pva_partner measurements (see PowerShell PSA below) and report both the existence of UNSTABLE auto-negotiations along with some “details” explaining the instability. When instability is detected, it is characterized as one of 5 categories:</p> <ol style="list-style-type: none"> 1) PVA_Coupler_Loss: Receivers that cannot tolerate any wideband insertion loss in the link 2) Interop_Slave: Transceivers that struggle or fail to link when forced to SLAVE mode 3) Interop_MASTER: Transceivers that struggle or fail to link when forced to MASTER mode 4) Forced_Auto-Negs: 10/100 transceivers that do not reliably respond to link-partner induced auto-negotiations 5) Periodic_Drops: 10/100 transceivers that spontaneously drop link after link-ups lasting 20 or 30 seconds
	Important	<p>pva_tx_1000 test enhanced to more reliably capture and identify reasons for low 1000Base-T transmit power, typically in transceivers that advertise “low power consumption”. The test sorts ports that have a fixed low transmit power versus ports that are attempting to measure link length and reduce the 1000Base-T transmit power when the link length is perceived to be short. When ports that adjust power are identified, a new field indicates if the apparent mechanism used by the transceiver is based on (high) receive power or based upon a more direct measurement of link physical length. See Sifos Application Note: Assessing Low Power Transmitters - PhyView Analyzer.</p>
		<p>These are not actual test signals from the PHY transceiver. Instead, they are derived from Power Spectral Distortion (PSD) measurements performed while linked to PVA test ports.</p>
	Minor	<p>Enhanced test report Notes tab to explain the effect of excess packets received during Receiver Tests – i.e. when received packet count well exceeds transmitted packet count.</p>
PSL 3424 Quick Test	Minor	<p>Removed a low probability vulnerability to long command latency in one of the multi-port meter measurements.</p>
PowerShell PSA	Important	<p>The utility pva_stability_check re-designed and developed to produce a much more robust and reliable indication of instabilities resulting from auto-negotiations. Identifies transceivers that cannot tolerate any wideband insertion loss in the link and transceivers that struggle to link when forced into either gigabit SLAVE or gigabit MASTER. Also identifies and reports on certain anomalies observed in 10/100 transceivers.</p>

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		These changes are also reflected in the pva_partner meter that utilizes pva_stability_check and passes through the information.
	Moderate	mclass modified to allows the recovery of event counts when power is applied on one pairset while classification was performed on the other pairset. psa_connect also modified to support this new ability.
	Minor	PVA PSD meter (pva_psd) and pva_cals utility for local meter calibrations adapted to support future PVA Version 4 Hardware with reduced front-end wideband coupler loss.

PSA 5.3.03 Bug Fixes

Software Entity	Impact	Feature
PSA Interactive	Major	Corrected issue where the Adjust Load control in the Power Up tab menu would cause an error condition if set to Watts mode when working with the PSL-3424 instrument. There may have also been one or two other error vulnerabilities, all of which were remedied.

PSA/PVA Firmware Versions

PSA 5.3 software requires certain minimum versions of PSA/PSL test port firmware. The following versions are the current versions for each product. Sifos recommends updating firmware to these.

PSA-3000 Controller: ver 3.1C PSA-3402 Controller: ver 3.1C PSA-3424 Controller: ver 3.1C PSA-3002 Controller: ver 3.14 ¹	PSA-3202, PSL-3202 , PSA-3402: Test Port ver 4.19 , ALC ver 19	PSL-3424 Test Port: ver 5.02
PSA/PSL-3102 or PSA-3002 Test Port ver 3.2B	PVA-3102 Test Port ver 3.0B	

- 1 PVA-3002 compact PhyView Analyzers can run firmware versions later than 3.14 if the host software is version 5.3.00 or later. If software is before version 5.3.00, then controller firmware 3.14 should be installed.

PSA-3202/PSL-3202/PSA-3402 ALC Version 19 Update

The ALC firmware within a PSA-3202/PSL-3202/PSA-3402 is a vital element affecting the instrument's ability to reliably emulate all **802.3bt** PD's and to test **802.3bt** PSE's under a wide variety of conditions. The current version of ALC firmware is **version 19** that was introduced with the PSA **5.2.03** release. Any instruments that are used for 802.3bt PSE testing either now or in the future should be updated to this version if they have not already had that update.

To examine current ALC firmware version, simply open **PowerShell Tcl** or **Wish** and execute:

psa_config -alc

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ALC Version 19 Update Instructions

Updating any PSA/PSL test instrument to ALC version 19 is a very simple task. However, it should be performed when the instrument is not needed for a while as it will consume 10 minutes PER TEST PORT to complete. It is recommended to simply run this update overnight from a PC that is not busy performing other tasks.

To perform the ALC version 19 update to all PSA/PSL-3202 test ports:

After installing PSA version 5.2.03 or 5.2.04 software, open PowerShell (Wish or Tcl), connect to instrument that will be updated, and execute:

alc_updater_19

When the update is completed, look for the indication:

alc_updater_19: UPDATES COMPLETED !!!!

Ports **** Updated Successfully!