

PSA 5.2.03 Release Notes

The PSA 5.2.03 Release Note is applicable to the PSA-3000 and PVA-3000 family of test instruments.

Highlights

On the PowerSync Analyzer side, the PSA 5.2.03 release adds a number of refinements to the **PSE Conformance Test Suites** (2-Pair and 4-Pair) that are highly recommend to all users of those test suites. Details of those are included below.

Also, the PSA 5.2.03 release will be utilized in a first attempt to gain EA Certification as 1st Party Test Equipment applicable to 4-Pair (802.3bt) PSE “GEN2” certification. With this, PSA 5.2.03 supports “**EA Mode**” testing of 2-Pair 802.3at “GEN1” PSE’s, 2-Pair 802.3bt “GEN2” PSE’s, and 4-Pair 802.3bt “GEN2” PSE’s. None of these are yet certified by EA – the most recent GEN1 EA certification was with PSA software version 5.2.00. Sifos will be pursuing these new certifications in the coming months.

The PSA 5.2.03 release includes a new **ALC firmware update, version 19**. This version addresses a number of subtle vulnerabilities present in prior ALC firmware versions including version 18. It is highly recommended that all instruments with PSA-3202 / PSL-3202 blades and all PSA-3402 instruments perform this firmware update. See **ALC Version 19 Update Instructions** below.

With the PSA 5.2.03 release, a new mid-release patching facility is introduced so that applications including the PSE Conformance Test Suites can be readily patch-updated between software releases.

PSE Conformance Test Suite Tracking Service

When installing 5.2.03 software, customers who are licensed for the **2-Pair** (formerly 802.3at) PSE Conformance Test Suite and are active on Conformance Test Suite Tracking Service must enter the **2Pair CTS Key** in order to retain the PSE Conformance Test Suite after the software update. Customers who are licensed for the **4-Pair** test suite must enter the **4Pair CTS Key** to maintain that test suite.

Both Product Keys are revised relative to earlier 5.2.02 and 5.2.01 releases and may be obtained by registering / logging into the Sifos website for product downloads. Customers who are active on Conformance Test Suite Tracking Service and have accounts at www.sifos.com may obtain product keys from the **Product Download** area.

PSA 5.2.03 Enhancements

Software Entity	Impact	Feature
4-Pair PSE Conformance Test Suite	Important	PSA Interactive Conf Test tab menu also supports the EA Mode control for 4-Pair Conformance Testing. Then sequence command now accepts an -ea argument to run the test suite in GEN2 EA Certification mode when testing 4-Pair PSE’s. Added newly created GEN2 4-Pair PSE Test Report template for GEN2 EA reporting.
	Important	det_time test was modified and expanded to more accurately measure detection back-off time and to add this measurement for both Dual and Single signature cases. These adjustments were made to satisfy requirements from the EA GEN2 test plan.

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	Important	class_err test added Class_Reset_SS and Class_Reset_DS flag parameters that assess PSE provides IDLE voltage for \geq Treset after 55mA class signatures are applied to Single and Dual Signature respectively.
	Important	class_v and class_time tests were modified so that if no Class Probe is discovered in Dual Signature using maximum supported classifications, then a search for Class Probe and associated parametric parameters is performed using Class 2D. If discovered, Class Probe and Treset figures are reported.
	Important	class_ildp test was enhanced as follows: <ul style="list-style-type: none"> • Add check of PSE ability to perform power negotiation with an 802.3at PD using 802.3at TLV's. New parameter is PSE_AT_Pwr_Neg. This change was made to satisfy requirements from the EA GEN2 test plan. • Add check of assess 802.3bt TLV functionality AFTER a negotiation is completed using 802.3at TLV's. New parameter is PSE_Post_AT_Pwr_Neg.
	Important	pwrup_inrush test was expanded to check inrush currents when port voltage drops as low as 15V looking for minimum 60mA foldback current. New parameters are linrush_16V_DS* .
	Important	pwrn_v test was enhanced to determine if a test port includes a new hardware calibration that can be used to reduce the upper test limit for Vport_pse_diff from the prior 195mA to 65mA, thus better assessing this PSE contribution to pair-pair unbalance. <i>Test blades used in GEN2 certification will require this additional factory calibration to be completed.</i>
	Important	pwrn_time test adds a new parameter Idle_time_SS to assess duration of IDLE time after a disconnect shutdown. This change was made to satisfy requirements from the EA GEN2 test plan.
	Moderate	pwrn_v altered to remove fan control logic in order to prevent very rare Fan Error conditions from prematurely terminating a test sequence. Alternative logic now used to minimize possibility of fans running during AC Ripple and Noise measurements.
	Moderate	The 4-Pair test sequencer was enhanced to process a case where at PSE conformance test returns different counts of parameters on different test ports. This will now be reported as a test error and will not cause a sequencing error.
	Moderate	psa_trapper utility was enhanced with the following features: <ul style="list-style-type: none"> • Optionally trap on multiple criteria in a test, e.g. multiple parameters falling with multiple ranges • Optionally sequence a preceding test that is user specified during each trapper cycle.

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	Moderate	pwron_unbal enhanced to measure and report lpeak_unb with PSE's that support only up to Class 3 or Class 4.
	Minor	det_rsource test better adapted to a case when an invalid signature on both pairsets produces no signaling on one pairset.
	Minor	Detection step signaling analysis tweaked to reduce vulnerability to noisy detection steps under particular conditions.
	Minor	class_v and class_time tests were modified to handle a case where given Dual signature, one pairset has valid classification while the other pairset performs an invalid classification (e.g. no mark events).
	Minor	pwrup_inrush test modified to ignore first ~.75msec of inrush current in determining Inrush_min current. This allows for a very short (e.g. 500usec) powering stagger that might occur with some PSE's doing 4-pair power-ups.
	Minor	pwron_maxi adjusted so that a PSE that fails to shut down when measuring Tlim_* will report "999" rather than "-1".
	Minor	Removed small vulnerability that the sequence command could return with an error that would obscure an error from a PSE conformance test.
	Minor	All 4-Pair standard test reports (spreadsheets) enhanced to manage window sizing and re-opening behaviors to be compatible with Office (Excel) versions 2007 to current versions.
2-Pair PSE Conformance Test Suite	Moderate	pwron_v altered to remove fan control logic in order to prevent very rare Fan Error conditions from prematurely terminating a test sequence. Alternative logic now used to minimize possibility of fans running during AC Ripple and Noise measurements.
	Minor	psa_trapper utility expanded with control to optionally restrict repetitious calls to psa_det_char prior to detection, classification, and power-up tests.
	Minor	Refined classification signal analysis to better handle the specific case of a very long detection cycle transitioning immediately into classification.
	Minor	Revised class_v to adapt to an ALC version 18 anomaly that would occasionally delay mark event current application by 300-400 usec. (ALC version 19 removed that anomaly.)
	Minor	pwron_maxi adjusted to alter criteria for recognizing PSE power removals during the llim_Low_V_tol measurement. Also adjusted Tlim_1 and llim_Low_V_tol test limits applied when testing Type-2 and Type-3 2-Pair PSE's with Type-1 PD emulation.

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	Minor	All 2-Pair standard test reports (spreadsheets) enhanced to manage window sizing and re-opening behaviors to be compatible with Office (Excel) versions 2007 to current versions.
	Minor	802.3bt 2-Pair GEN2 standard test report enhanced to map all EA Test ID coverage (i.e. PICS coverage) in a manner consistent with the new 4-Pair GEN2 test report. "GEN2" now included in report header.
One-Click Waveforms	Moderate	psa_detect_wfm enhanced to produce higher resolution with high_ss and low_ss waveforms as needed for the new detection backoff measurements performed by det_time .
	Moderate	psa_class_wfm enhanced to support emulated class signatures "55" and "55D" to support Treset measurements
	Minor	psa_disconnect_wfm : Added new optional control of the mark event current experienced during PSE MPS shutdowns. This was required by a modification in the pwrnd_time test.
PVA PHY Performance Test Suite	Moderate	pva_dc_unbal : <ul style="list-style-type: none"> Modify to be tolerant of LLDP PSE's that remove power when LAN is disconnected (e.g. Buffalo 2116, MNO-M5) Add new command argument to inhibit any SNR calibration corrections regardless of PVA-DCU characteristics Cap all SNR measurements to 34 dB. Completely re-vamped the logic to determine if an SNR calibration will be used to compensate measurements. Add check that the PSE power status during the 0mA load condition to make sure that the 20mA unbalance bias in PVA-DCU keeps the PSE powered for the first measurements.
	Minor	pva_rx_1000 : If forcing MASTER and unable to link after Line Loss is connected, get the PVA Rx Gain out of "auto" mode and fix it a 4.
PVA Metering	Moderate	pva_psd enhanced to record calibration data collected during 1000Base-T PSD local calibrations and to alert when cal partner power servo fails to meet objectives.
	Minor	pva_rx_pwr meter adjusted to allow longer link-ups if/when Tx gain is fixed prior to the wideband power measurement.
PowerShell PSA	Important	Implemented mid-release software patching scheme whereby mid-release versions of PSE Conformance Test Suites, basic PSA/PSL configuration commands, and metering commands can be readily performed without Windows User Account Control interference. This is especially important for the PSE conformance test suites that are automatically swapped in and out of PowerShell PSA depending upon a number of factors.

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	Moderate	power_bt modified in a number of areas: <ul style="list-style-type: none"> Prevent failed power-ups from possibly leaving armed triggers and load transients in the test port Allow standard mark event loads and load transients to run when event counting with ALC version 19 Add new PD classifications “55” and “55D” in support of Treset testing under psa_class_wfm and class_err test Remove use of foldback suppression during inrush transients to prevent choking off mark event currents during classification.
	Moderate	psa_conn_check modified to assure ports are disconnected when the utility completes.
	Minor	qpsa_config command modified to prevent issues with test ports that are in 4-pair modes when multiple chassis’ are bound in to a multi-chassis configuration.
	Minor	Expanded support for additional 64-Bit Linux versions
	Minor	Enhanced diagnostics when a PSA-3000 generates a Fan Error condition.

PSA 5.2.03 Bug Fixes

Software Entity	Impact	Feature
4-Pair PSE Conformance Test Suite	Moderate	Classification signal processing logic adjusted to remove a vulnerability where under particular circumstances, Vclass_min would be reported as the same value as Vclass_max .
One-Click Waveforms	Minor	psa_class_wfm : Corrected processing issue in producing uneven class waveforms for class_err test affecting test time.
PVA DC Unbalance Test	Important	pva_dc_unbal : <ul style="list-style-type: none"> Corrected serious bugs introduced in PSA 5.2.02 that prevented it from running with PSA-3102 test blades, all PSL-3x02 blades, and PSA-3002 instruments. Corrected serious bug introduced in PSA 5.2.02 that prevented from working with 802.3at LLDP PSE’s.

PSA/PVA Firmware Versions

PSA 5.2 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 3.18 PSA-3402 Controller: ver 3.18	PSA-3202, PSL-3202 , PSA-3402: Test Port ver 4.17 , ALC ver 19
PSA/PSL-3102 or PSA-3002 Test Port ver 3.2B	PVA-3102 Test Port ver 3.0B

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Important! **PSA-3000 Controller** firmware **3.18** or later is required in order for PSA 5.2 software to speed up host-to-test-port communications. Without this firmware version, there will be no change in communications bandwidth.

Important! The **4-Pair** PSE Conformance Test Suite requires PSA-3202 firmware version **4.14** or later. This version implements a trace capture feature that enables better resolution of PSE classification timing. Version **4.17** is recommended.

Important! PSx-**3202** firmware **4.17** or later and PSx-**3102** firmware **3.2B** addresses an extremely subtle and rare problem that develops when running PSE conformance tests with **LLDP power-granting PSE's**. The problem can manifest as either an I/O timeout to the PSA instrument or as an LLDP LAN interface that fails to auto-negotiate with the PSE port under test. Only PSx-3202 and PSx-3102 **hardware versions 8 and 9** are impacted by this problem. These versions also address another rare problem that manifests in the **pwruptrace** meter used by the **2-Pair PSE Conformance Test Suite** where early portions of a voltage trace may have corrupted values.

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**. Any instruments that are used for 802.3bt PSE testing either now or in the future should be updated to this version.

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

```
psa_config -alc
```

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 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!
```