Sifos Technologies
Ethernet PHY and PoE Verification Solutions

Newsletter, Volume XIV, May 2015

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Benefits for *every* Sifos PSA, PSL, PVA and PDA-LLDP Customer!

New Multi-Port Test Suite for IEEE 802.3at PSE's
A whole new approach to *comprehensive* PSE system analysis

4-Pair PSE Analysis with PSA/PSL Interactive GUI
Effortlessly configure signatures, manage loads and collect waveforms

Improved 10/100/1000Base-T PHY Performance Testing
The *easiest solution* for 10/100/1000Base-T interface verification... anywhere!

Improved PSE Conformance Testing
More coverage, more PSE's, refined ports... *ultimate* productivity!

Improved PSE DC Unbalance Tolerance Assessment & PD Ethernet Port Analysis
The easiest way *ever* to assess the PoE impairment to 10/100/1000Base-T PSEs and PDs

PSA 4.1 Software Release

It's been almost 3 years and close to 20 sub-releases of PSA software since the PSA 4.0 software release. **LOTS HAS HAPPENED SINCE THEN!**

The PSA 4.1 software release includes significant enhancements and improvements to all major feature sets of the PhyView Analyzer (PVA), PowerSync Analyzer (PSA), PowerSync Programmable Load (PSL) and PDA-LLDP test instruments. The new software also incorporates a whole new **Multi-Port Test Suite** for 802.3at PSEs and new graphical user interfaces to perform pre-standard **4-pair PSE testing** and analysis.
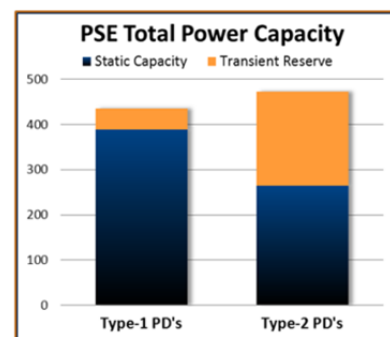
Feature improvements and enhancements include:

- **PSE Conformance Test Suite** for the PSA; *well over 100 enhancements* and specification coverage improvements since the PSA 4.0 software release. New, more informative standard report.
- **PHY Performance Test Suite** for the PVA; *well over 40 enhancements* and refinements since the PSA 4.0 software release. New, more informative standard report. Improved **DC Unbalance Analysis** with new standard spreadsheet report.
- Improved, more accurate **PSE LLDP Emulation & Analysis** for the PSA-3XXX / PSL-3XXX with improved spreadsheet report.
- Improved, more accurate **PD LLDP Protocol Emulation & Analysis** for the PDA-LLDP with improved standard spreadsheet report.

All Sifos Product Manuals and associated literature are updated for PSA 4.1 software release and are available for download from the Sifos website to registered users and active PSE Conformance Test Suite Tracking Service customers who will also receive new hardcopy PSA-30XX Manuals and CD's shortly.

PSE Multi-Port 2nd Generation Test Suite for 802.3at

With the 2nd generation PSE Multi-Port Test Suite, PSE system evaluators can readily, that is a with a few mouse clicks, discover answers to such questions as:
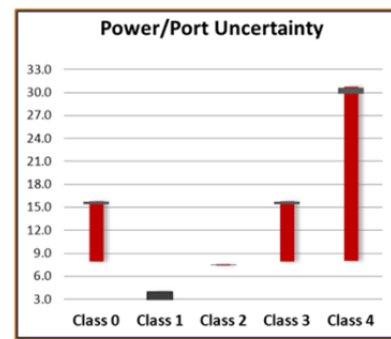

- How does PSE power management respond to *multi-port connections* of Class N PD's and how does power management respond to *multi-port LLDP negotiations* requesting full Class N power levels? (N= 0, 1, 2, 3, or 4)
- How much time does it take for the PSE to apply power to, and if applicable, complete LLDP power negotiation with Type-1 and/or Type-2 PD's?
- How much time does it take for the PSE to remove power given bulk PD disconnects and how much time to restore power when PD's are re-connected?
- How much *continuous power* can the PSE furnish to all powered (and granted) Type-1 and/or Type-2 PD's? What is the magnitude of *over-allocated*

or under-allocated power to Type-1 and/or Type-2 PD's?

- How much power capacity is **reserved for valid** Type-1 and/or Type-2 PD *load transients* under conditions of full and 50% static power consumption?
- How predictable is PSE port *overload shutdown criteria* both as a function of PSE port and as a function of total static power load to Class N PD's?
- How much time does it take for the PSE to remove power given moderate PD overloads and how much time to restore power following bulk overload shutdowns?
- How does PSE power management respond to *differing subsets of PSE ports* experiencing a variety of Class N PD connections?
- How *stable* is PSE power when operating at 95% of static power capacity over a prolonged period of time?

The 2nd generation Multi-Port Test Suite is simple to configure and requires just a single cycle sequence all test conditions to Type-1 (15.4W) and Type-2 (30W) PSE's. New reporting is colorful with graphs and tabular summaries that convey critical PSE system behaviors.

4-Pair PSE Analysis with PSA/PSL Interactive GUI

With PSA 4.1 software, Sifos is introducing new menus for PSA Interactive and PSL Interactive graphical user interface software that enable flexible signature configuration, flexible loading, user configured measurements, and standard waveforms for pre-standard 4-Pair PSE's. The new menus allow users to:

- Configure detection and class signatures to Alt-A and/or Alt-B pair-sets on a single port or on all ports.
- Effect both 4-Pair (Alt-A and Alt-B) and 2-Pair (Alt-A or Alt-B) connections and disconnects on a single port or on all ports.
- Emulate proprietary UPoE 4-Pair LLDP protocol to negotiate power demand.
- Configure 4-Pair static power loads (in watts) on a single port or on all ports.
- Perform immediate triggered or event-triggered DC measurements of Voltage, Current, and Power on Alt-A and/or Alt-B pair-sets.
- Collect and analyze synchronous waveforms of port voltage by pair-set and combined 4-pair waveforms of port current and power (*PSA-3XXX only*).
- Produce single-button standard waveforms of detection signaling, class signaling, power-up sequencing, static powering, 4-pair and 2-pair disconnect

responses, and 4-pair and 2-pair overload responses.

Using the new 4-Pair menus, users can readily emulate commonly found proprietary 4-Pair PD classes such as *PoH* (to 95 watts), *Cisco UPoE* (including LLDP and forced 4-pair modes), *LT PoE++* (3 event). Other proprietary schemes can also be configured with the 4-Pair menus.
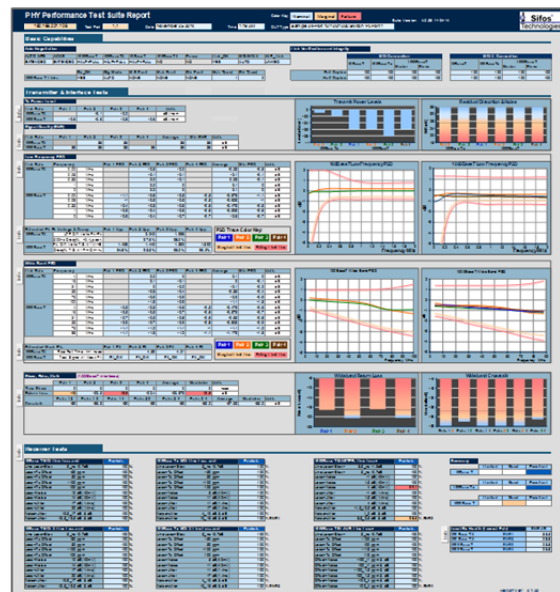
These features complement existing capability in PSA software to perform Live PD Emulation under the Multi-Port Suite to emulate up to 96 4-Pair PD's using up to 8 PSA/PSL chassis'.

Improved 10/100/1000Base-T PHY Performance Testing

Much like the PSE Conformance Test Suite, the PHY Performance Test Suite for the PhyView Analyzer gains refinements as a growing base of customers deploys it to evaluate an ever broadening set of 10/100/1000Base-T interface technologies and devices. Since the original release in PSA 4.0 software, the suite has experienced at least 40 distinct enhancements and refinements to improve accuracy and to adapt to unusual or unexpected interface behaviors. More specifically, enhancements include:

- Extended analyses in Basic Capabilities to *better recognize and address* problems with auto-negotiation that can potentially interfere with link-ups required for both transmission and receiver testing.
- Enhanced coverage for potential *auto-negotiation problems*; an area where traditional IEEE 802.3 testing is weak or non-existent.
- Minor enhancements in transmission measurements and results processing to *improve accuracy and repeatability*.
- Enhancements and refinements to receiver testing including *impairment magnitude selections* and more comprehensive handling of port-under-test reactions to impairments.

The new PHY Performance Test Suite reporting template provides more

extensive background on tests and test parameters while implementing color schemes and graphics that readily depict marginal and out-of-specification parameters.

Improved PSE Conformance Testing

The PSE Conformance Test Suite has made gains in test (or defect) coverage and experienced numerous refinements to its adaptive logic intelligence since the PSA 4.0 release. The over 100 enhancements include:

- Revised or added conformance parameters to tests *det_v, det_time, pwrup_inrush, pwron_v, pwron_pwrcap* and others.
- Reduced susceptibility to long latency connections between PSA-3000 and host computer.
- Improved accuracy and repeatability in tests such as *det_i, class_time, class_err, pwrup_time* and others.
- Adaptation to new PSA-3102 test port hardware versions (versions 3-6).
- Improve test reporting and test limit derivation logic.
- New standard spreadsheet report with more complete and accurate test parameter explanations and refined "Sifos Interop" scoring calculation.

Since the PSA 4.0 release, the PSE Conformance Test has been verified against many new PSE Controllers including a number of second and third generation 802.3at PSE controllers.
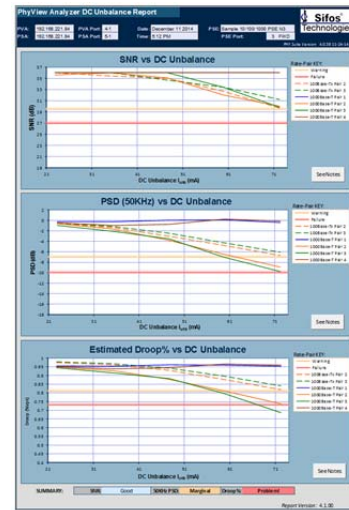

Improved PSE DC Unbalance Tolerance Assessment
& PD Ethernet Port Analysis

Ever wonder how PoE service impairs to 10/100/1000Base-T

interface performance?

Hopefully, it doesn't. However, reality is that for reasons beyond a PSE port's control, DC unbalance can potentially degrade LAN signaling integrity thus compromising link performance. DC Unbalance can arise from asymmetrical wire pairs, compromised RJ-45 connections and powered device magnetic unbalance to name a few possible sources. PSE's must therefore tolerate the phenomenon of DC unbalance where either outgoing DC current and/or incoming DC current does not split evenly between wire pairs. Most susceptible to DC unbalance are the Ethernet magnetics in each PSE port.

DC Unbalance tolerance is an extremely difficult assessment to perform. Sifos offers a unique solution that combines PowerSync Analyzer (or Programmable Load) ports with PhyView Analyzer test ports to produce fully automated analyses of the impact in varying levels of DC Unbalance to 100Base-Tx and 1000Base-T signal quality. Measurements include SNR (distortion), Low Frequency Response (attenuation) and Estimated Pulse Droop resulting from compromised magnetics.

With the PSA 4.1 software release, the *fully automated* DC Unbalance test, as part of the PHY Performance Test Suite, has been refined with improved measurements and reporting. Also, a *new PVA-DCU module* is introduced that, in concert with the PSA-3000 / PSL-3000 test port, provides DC unbalance current on either Alt-A, Alt-B, or both Alt-A and Alt-B pair-sets. Each PVA-DCU can provide controlled DC unbalance to two links.

For those interested in assessing Powered Device (PD) 10/100/1000Base-T interface performance, the PHY Performance Test Suite can be run through a mid-span injector to assess PD PHY performance. See Sifos application note **Powered Device Ethernet Port Analysis** for further information.

Quick Links

Sifos Technologies Website
(Registration and Login Links on Top Right Corner)

PSE Multi-Port 2nd Generation Test Suite for 802.3at & Video

4-Pair PSE Testing with the PSA-3000 & PSL-3000 Application Note

PHY Performance Test Suite Product Overview, Datasheet Video & Demo Video

PSE Conformance Test Suite Product Overview & Demo Video

DC Unbalance Tolerance in PSE's Application Note

Powered Device Ethernet Port Analysis Application Note

STAY CONNECTED