Key Features

- **Robust** 802.3at / 802.3bt 2-Pair PSE Conformance Testing
- **Fully Automated** Port Sequencing and Statistics
- **Greater than 95%** PICS Coverage from 23 Tests Producing more than 75 IEEE 802.3at/802.3bt Test Parameters per Port
- **Fully Emulates** All Type-1, 2, and 3 (Class 0, 1, 2, 3, and 4) PD’s Including PoE LLDP-Capable PD’s
- **Test Type-2 and Type-3** PSE’s that Allocate Class 4 Power Using Multi-Event, LLDP, or Both Multi-Event and LLDP
- **Automatically Adapts** to All Prevalent PSE Signaling and Power Behaviors Including 802.3+Legacy Detection Signaling Behaviors
- **Configurable Waveform Trace Diagnostic** Generation and Retention
- **Colorful and Informative** Spreadsheet Reporting with Compliance (Pass/Fail) Notations and Parameter Statistics
- **Run & Sequence from PSA Interactive GUI or PowerShell PSA Command Line**
Overview

Power-over-Ethernet (PoE) challenges design and test engineers to evaluate multi-channel, “intelligent” DC power sources that are activated and deactivated through signaling protocols operating over several power delivery and polarity configurations. The application and management of DC power over multiple local area network connections must be completely transparent and non-disruptive to the traditional data transmission functions of those network connections.

Higher Power, Smarter Power with 802.3at and 802.3bt

Under the IEEE 802.3 standards, power delivered on two wire pairs to a Powered Device ranges up to 25.5 watts at the PD interface. This places greater demands on PSE’s to produce higher power levels and to properly allocate that power to many PD’s. Issues of safety and specification compliance are accentuated by the higher power delivery capabilities of each Ethernet Port. The 802.3at and 802.3bt standards also specify a new form of Link Layer Discovery Protocol (LLDP) for PoE whereby new generation PD’s can communicate power demand and PSE’s can communicate power allocations to those PD’s, allowing overall power budgeting with granularity of 0.1 watt per Ethernet port.

Fully Automated Testing with Very High Test Coverage

The PSE Conformance Test Suite for 2-Pair PoE produces between 75 and 112 IEEE 802.3at/802.3bt test parameters per PSE port depending upon PSE capabilities and attributes. These parameters are measured in 23 distinct tests that may be selected and sequenced across up to 24 PSE ports at a time. The test covers over 95% of the PSE PICS (conformance check list items) in the IEEE 802.3at specification*. The PSE Conformance Test Suite is widely used throughout the internetworking community as the industry “norm” for PSE specification compliance.

IEEE 802.3af, 802.3at, 802.3bt Cross-Compatibility

In today’s world of PoE, PD’s developed under three different 802.3 standards must be supported by all PSE’s developed under those same standards. The 2-Pair PSE Conformance Test Suite evaluates 2-Pair PSE behaviors to assure proper interoperation with the full gamut of 802.3 compliant PD’s.

Robust Diagnostics and Reporting

The 2-Pair PSE Conformance Test Suite automatically sequences to a pop-up spreadsheet report with full color notations of parameter pass/fail status per port and cross-port statistics for each parameter. This report automatically adapts test limits to the PSE type and test case that is sequenced. For diagnostic analysis, PSE Conformance Tests can optionally present graphical waveform traces obtained and analyzed during the course of a test. Each trace is individually notated with a description of the trace purpose or measurement parameter.

Certified for 1st Party EA Logo Testing

The PSE Conformance Test Suite, in combination with the PowerSync Analyzer, has been qualified to fulfill all of the PSE testing required to obtain and maintain Ethernet Alliance PoE Logo marks for 802.3at PSE’s. A specialized EA PoE Logo Certification Report is also provided for 1st Party Authorized Test Labs seeking EA PoE Logo certification for PSE’s.

* For 802.3at PICS Coverage, see Sifos application note: 802.3at PSE PICS Coverage.pdf
## PSE Conformance Tests & Parameters

### Detection Probing and Functional Tests

<table>
<thead>
<tr>
<th>det_v</th>
<th>Detection Pulse Waveform Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captures and analyzes PSE detection probe voltages with both valid and slightly non-valid detection signatures.</td>
<td></td>
</tr>
<tr>
<td>Voc</td>
<td>Peak open circuit (disconnected) detection voltage</td>
</tr>
<tr>
<td>VValid(Max)</td>
<td>Maximum Detection Step Level with Valid Signature</td>
</tr>
<tr>
<td>VValid(Min)</td>
<td>Minimum Detection Step Level with Valid Signature</td>
</tr>
<tr>
<td>ΔVtest</td>
<td>Detection Step Magnitude</td>
</tr>
<tr>
<td>Detection Slew</td>
<td>Detection step slew rate</td>
</tr>
<tr>
<td>Good_Sig_Det_Pulse</td>
<td>Number of Detection Signal transitions</td>
</tr>
<tr>
<td>Vbkoff</td>
<td>Minimum Voltage during detection (ALT B) backoff</td>
</tr>
<tr>
<td>Non802_Step_V</td>
<td>Level of any pre-detection signals</td>
</tr>
<tr>
<td>High_Sig_MaxV</td>
<td>Maximum detection voltage with high detection signature</td>
</tr>
<tr>
<td>Non802_Discr?</td>
<td>Dependence upon Non-802 detection for validity. PSE’s that use non-802.3 detection measurements to resolve a valid signature band will report “1”.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>det_i</th>
<th>Detection Current Limiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures maximum current sourcing capability from a PSE during detection.</td>
<td></td>
</tr>
<tr>
<td>Isc(Init)</td>
<td>Max detection current at minimum detection voltage</td>
</tr>
<tr>
<td>Isc(Det)</td>
<td>Max detection current during detection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>det_range</th>
<th>Detection Passive Acceptance Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assesses the range of acceptable PD signatures and the reliability of valid detection given random connect timing and capacitive loading.</td>
<td></td>
</tr>
<tr>
<td>Rgood_Max</td>
<td>Maximum accepted detection resistance signature</td>
</tr>
<tr>
<td>Rgood_Min</td>
<td>Minimum accepted detection resistance signature</td>
</tr>
<tr>
<td>Rmid_det</td>
<td>MAX (or MIN) detection resistance given random connections</td>
</tr>
<tr>
<td>Cgood_Max</td>
<td>Maximum accepted detection capacitance signature</td>
</tr>
<tr>
<td>Rbad_Cbad_Stat</td>
<td>Power-Up status given a 35Kohm (marginally high) resistive signature with the lowest Capacitive signature rejected by the PSE.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>det_time</th>
<th>Detection Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures detection backoff and detection probe timing parameters.</td>
<td></td>
</tr>
<tr>
<td>Tdbo</td>
<td>Detection back-off time (between failed detections)</td>
</tr>
<tr>
<td>Tdbo_eff</td>
<td>Effective back-off time for PSE’s that ignore rather than disable detection measurements</td>
</tr>
<tr>
<td>Tdet</td>
<td>802.3at detection time duration</td>
</tr>
<tr>
<td>Tdet_tot</td>
<td>Total detection time including pre-detection measurements</td>
</tr>
<tr>
<td>Backoff_Type</td>
<td>Reports PSE Detection back-off as one of several known strategies including 802.3at standard, legacy, and 4-pair detection schemes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>det_resource</th>
<th>PSE Output Resistance during Detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures effective source resistance of PSE port during detection.</td>
<td></td>
</tr>
<tr>
<td>Zout</td>
<td>PSE estimated output impedance during detection</td>
</tr>
</tbody>
</table>
**Classification Signaling and Functional Tests**

### class_v: Classification Voltages
Captures and analyzes PSE classification voltage levels, focusing on only the final classification performed prior to power-up. Class and Mark voltages are evaluated over every Class and Mark event present.

- **Vclass**: Class Pulse Average Voltage with 1 mA class signature
- **Vclass_min**: Class Pulse Average Voltage with 45 mA class signature
- **Vmark**: Mark Voltage Region with 4 mA mark signature load
- **Vmark_min**: Minimum Port Voltage measured over both MARK regions until power-up
- **Vreset**: (Type-3 PSE’s only) Class Probe Reset Voltage (if present)

### class_time: Classification Timing
Captures and analyzes PSE classification signal timing, focusing on only the final classification performed prior to power-up.

- **Event_Count**: Count of class pulses
- **Tpdc**: Duration of class pulse given Single-Event Classification
- **Tcle1/Tlce**: Duration of first class pulse given Multi-Event Classification
- **Tcle2**: Duration of second* class pulse given Multi-Event Classification
- **Tme1**: Duration of first mark interval given Multi-Event Classification
- **Tme2**: Duration of second* mark interval given Multi-Event Classification
- **Class_Reset_Time**: (Type-3 PSE’s only) Duration of class reset after class probe (if present)
- **Class_Probe_Events**: (Type-3 PSE’s only) Number of class pulses in a class probe (if present)

* If a Type-3 PSE performs 3-Event classification, only the first two class and mark events will affect PD signature interpretation. The class_v test assures that 3rd class an mark voltages are above 7VDC.

### class_err: Classification Current Limiting
Evaluates any current limiting applied to classification signals by PSE as well as PSE powering behaviors following overloaded or illegal classification signatures.

- **Class_lim**: Maximum Class Current before PSE starts to limit Class Current
- **Vport_CL_lim**: Power-Up response (as binary) following a current limited classification load
- **Mark_lim**: Minimum Mark Current Supported during 2-event Mark Region - tested at 5.5 mA and 105 mA given 2-Event Classification
- **Vport_CL_err_1**: Power-Up response (as binary) following up to 3 successive class signatures that changed from Event #1 to Event #2 (asymmetrical signature)
- **Treset**: Duration of PSE IDLE state following asymmetrical class signature

### class_lldp: LLDP Protocol and Mutual Discovery Testing
Assesses PSE LLDP basic protocol fields, protocol timing, and power request processing for Type-1, 2, and 3 PD’s. 802.3at TLV’s utilized for all cases except **PSE_Alloc_Pwr_bt_tlv_N & PD_Pwr_Adjust_bt_tlv_N**.

- **PSE_Source_Priority**: Bit Field for PSE Source, Priority, Reserved
- **PSE_MDI_Pwr_Sup**: Bit Field from legacy TLV for Port Class, MDI Power Support, MDI Power State, Pair Selection, and Reserved
- **PSE_LLDP_Time_1**: Time from Power-On to first PoE LLDP frame from PSE given Type-1 PD
- **PSE_LLDP_Type_1**: PSE Type advertised by a PSE given Class 0-3 PD signature
- **PSE_Echo_Time_1**: Time for PSE to echo back the PD Requested Power level
- **PSE_Alloc_PWR_1**: Allocated Power in response to 8.1 W PD Request from a Class 0–3 PD
- **PSE_Alloc_Time_1**: Time to respond To 8.1 W PD Request with Power Allocated
- **PD_Power_Adjust_1**: Allocated Power in response to a Change Request from 8.1W to 13W
- **PSE_Adjust_Time_1**: Time to echo a PD 13 watt PD Change Request
- **PSE_LLDP_Time_2**: Time from Power-On state to first PoE LLDP frame from PSE given Type-2 PD
- **PSE_LLDP_Type_2**: PSE Type advertised by PSE given Class 4 PD signature
- **PSE_Echo_Time_2**: Time for PSE to echo back the PD Requested Power level
### Classification Signaling and Functional Tests

- **PSE_Alloc_Pwr_2**
  Allocated Power in response to 20.3W PD Request from a Class 4 PD

- **PSE_Alloc_Time_2**
  Time to respond To 20.3 W PD Request with Power Allocated

- **PD_Power_Adjust_2**
  Allocated Power in response to Change Request from 20.3W to 25.5W

- **PSE_Adjust_Time_2**
  Time to echo a PD 25.5 watt PD Change Request

- **Link_Down_Shutdown_?**
  Indicates if power removed on Link Drop after LLDP negotiation

- **PSE_Alloc_Pwr_bt_tlv_1**
  (Type-3 PSE’s only) PSE ability to allocate using 802.3bt TLV’s with Class 3 PD

- **PD_Power_Adjust_bt_tlv_1**
  (Type-3 PSE’s only) PSE ability to adjust power using 802.3bt TLV’s with Class 3 PD

- **PSE_Alloc_Pwr_bt_tlv_2**
  (Type-3 PSE’s only) PSE ability to allocate using 802.3bt TLV’s with Class 4 PD

- **PD_Power_Adjust_bt_tlv_2**
  (Type-3 PSE’s only) PSE ability to adjust power using 802.3bt TLV’s with Class 4 PD

### Power-Up Processes

#### pwrup_time

**Power-Up Timing Parameters**

- **pwrup_time**
  Measures power-up rise time and time delay from completion of final detection until power applied.

- **Trise**
  Rise Time from 10% to 90% of Vport

- **Tpon**
  Time from end of detection until power-up. Tpon is measured from the final complete detection probe preceding a power-up

#### pwrup_inrush

**PSE Current Limiting Behaviors During Power-Up**

- **Init_Inrush**
  Maximum output current immediately after 1 msec of a severe inrush overload

- **Max_Inrush_c0**
  Maximum output current in time interval from 1 to 75 msec given Class 0-3 PD

- **Max_Inrush_c4**
  Maximum output current in time interval from 1 to 75 msec given Class 4 PD

- **Min_Inrush**
  Minimum output current while current limiting in time interval from 1 to 50 msec given 30V or higher port voltage

- **Tinrush**
  Duration of current limiting until PSE removes power

- **Inrush_45m**
  Port voltage after 50msec following 45 msec current limiting inrush overload

- **Max_Init_Inrush**
  Maximum output current up to 1 msec given a severe inrush overload

- **Vinrush**
  Average Port Voltage - PSE current limiting, PSA foldback suppression applied

- **Inrush_Strategy**
  Indicator if PSE uses "legacy_powerup" exception and consequences thereof categorized into one of five possible outcomes

### PSE Powered-On Performance and Processes

#### pwron_v

**Powered Port Voltage, Ripple, and Noise**

- **pwron_v**
  Measures PSE port DC and AC voltages in response to minimum and maximum power loads.

- **Vport_min_N**
  Min Port voltage with 0.5 Watt and Pport_Max (PD Class) loading

- **Vport_max_N**
  Max Port voltage with 0.5 Watt and Pport_Max (PD Class) loading

- **Vpp_ripple_N**
  Peak AC Ripple with 0.5 Watt and Pport_Max (PD Class) loading

- **Vpp_noise_N**
  Peak AC Noise with 0.5 Watt and Pport_Max (PD Class) loading

- **Vtrans_max_N**
  Maximum Port Voltage measured during a 5msec load transient from 12mA to Pport_Max / Vport and back.

- **Vtrans_min_N**
  Minimum Port Voltage measured during a 5msec load transient from 12mA to Pport_Max / Vport and back.

#### pwron_pwrkap

**PSE Port Power Capacity**

- **pwron_pwrkap**
  Measures the maximum power delivery capability of a PSE port given various PD Classifications and LLDP power allocations.

- **Pcon_c0**
  Maximum output power from PSE Port given Class 0 PD

- **Icon_%_c0**
  Maximum static output current relative to 802.3at Icon(Pclass_0)

- **Pcon_c1**
  Maximum output power from PSE Port given Class 1 PD

- **Icon_%_c1**
  Maximum static output current relative to 802.3at Icon(Pclass_1)
Pcon_c2= Maximum output power from PSE Port given Class 2 PD
Icon_%_c2= Maximum static output current relative to 802.3at Icon(Pclass_2)
Pcon_c3= Maximum output power from PSE Port given Class 3 PD
Icon_%_c3= Maximum static output current relative to 802.3at Icon(Pclass_3)
Pcon_c4= Maximum output power from PSE Port given Class 4 PD
Icon_%_c4= Maximum static output current relative to 802.3at Icon(Pclass_4)

Type-2_Enable Verifies >450 mA continuously available at 80 msec following 2-event power up for 2-event, Type-2 PSE’s or verifies >450 mA is not available for LLDP capable Type-2 PSE’s prior to negotiation

Pclass_LLDP_22.7 Indicator of PSE ability to deliver Pclass (Icon) given 22.7W power grant
Pclass_LLDP_24.5 Indicator of PSE ability to deliver Pclass (Icon) given 24.5W power grant

pwron_maxi PSE Response to Maximum Overloads
The pwron_maxi test evaluates PSE characteristics with respect to the POWER_ON state PI operating current templates in Figures 33-15 and 145-23 of the 802.3 specification.

Ilim_Peak Maximum output current tolerated by PSE in time frame of 8 to 75 msec
Ilim_Min_1 Minimum output current up to 50 msec with 402mA load pulse and foldback suppression applied to assure > 30VDC (Type-1 PD emulation)
Tlim_1* Time to port shutdown in response to 400 mA overload given Type-1 PD
Vlim_1 Average port voltage coincident with Tlim_1 measurement
Ilim_Max_1 Maximum output current from 1 to 75 msec given 700mA load pulse and foldback suppression active given a Type-1 PD
Ilim_Low_V_Tol_1 Measures time-to-port-foldback given a Type-1 PD with extreme overload
Ktran_lo_1 % excursion below 50V given 250usec (fast) overload transient (401 mA) given a Type-1 PD (Type-2 PSE’s only)
Ilim_Min_2 Minimum output current up to 50 msec with 686mA load pulse and foldback suppression applied to assure > 30VDC given Type-2 PD emulation
Tlim_2* Time to port shutdown in response to 684 mA overload given Type-2 PD
Vlim_2 Average port voltage coincident with Tlim_2 measurement
Ilim_Max_2 Maximum output current from 1 to 75 msec given 860mA load pulse and foldback suppression active given a Type-1 PD
Ilim_Low_V_Tol_2 Essentially a measure of time-to-port-foldback given a Type-2 PD

* Type-3 PSE’s may report Tlim_min_N and Tlim_max_N separately where Tlim_max_N is time to port shutdown in response to an 850mA overload given Type-1 or Type-2 PD.

pwron_overld PSE Response to Maximum PD Power Transients
The pwron_overld test assesses powered PSE port behaviors with respect to Ipeak, the maximum power overload allowed to a PD as defined in Equation 33-4 and 145-11 of the 802.3 standard.

%Ipeak_N Percent of required Ipeak current that is supported over 50msec duration where Ipeak required is defined by Equation 33-4 given a Type-N PD – maximum level verified is 125%
Vport_Ipeak_N Min Port Voltage at Ipeak transient pulse given a Type-N PD
Vport_5%DC_N Min Port Voltage over 5 seconds with a quantity of 50 msec Ipeak transients separated by 1 second (5% duty cycle) given a Type-N PD

MPS Processes for Power Removal on PD Disconnect

mps_ac_pwrdn Power Timing and Load Current Impact on AC MPS PSE’s
Evaluates power removal timing and DC load tolerance on an AC MPS PSE.
Tmpdo Disconnect power-down timing from disconnect event
I_hold_ac Maximum DC Load Current tolerated with AC MPS Disconnect Shutdown

mps_ac_vf AC MPS Signaling Characteristics
Measures AC MPS signaling characteristics during the Tmpdo interval.
V_open Peak-Peak AC probing voltage following PD Disconnect
V_open_%Vport Peak-Peak AC probing voltage expressed as a % Vport_pse
Fp AC probing signal frequency following PD Disconnect
AC_MPS_SR AC probing signal slew rate
Isac Signal current sourced by AC MPS signal generation resource
**MPS Processes for Power Removal on PD Disconnect**

- **mps_ac_voff**: AC MPS Peak Voltage Characteristics
  - Measures voltage peaks following PD disconnect and power-down events given an AC MPS PSE.
  - V_open1: Peak port voltage found after AC MPS power removal event
  - Vopen_pk: Peak port voltage following PD disconnect over a period of one second

- **mps_dc_valid**: DC MPS Valid Signature Timing Characteristics
  - Measures intermittent load tolerance thresholds of a DC MPS PSE. Test conditions and limits differ between Type-1/2 PSE’s and Type-3 PSE’s.
  - Tmps: Minimum valid signature ACTIVE time required for DC MPS validity
  - Duty_Cycle_tol: PSE power response to minimum valid load duty cycle

- **mps_dc_pwrdsn**: Power Timing and Threshold Assessment on DC MPS PSE’s
  - Evaluates power removal timing and DC load requirements on a DC MPS PSE. Test conditions and limits differ between Type-1/2 PSE’s and Type-3 PSE’s.
  - I_hold: Minimum current required to maintain power given DC MPS PSE
  - Tmpdo: Disconnect power-down timing from start of invalid signature
  - Vopen_pk: Peak port voltage following PD disconnect over a period of one second

**PSE Power-Down Characteristics**

- **pwrdsn_overld**: PSE Response to Non-Current Limiting Overloads
  - Evaluates PSE handling of non-current limiting overloads in the PSE discretionary region of the PI operating current templates in Figure 33-15 and 145-23 of the 802.3 specification.
  - Icut_N: Smallest load current of duration equal to Tcut_Max, or 75 msec, that causes immediate or delayed power removal given a Type-N (1 or 2) PSE.
  - Tcut_N: Time from start of transient until power removal but not exceeding 75 msec, the duration of the applied load transient.
  - Isoft_N: Smallest load current of duration equal to 2 seconds that causes immediate or delayed power removal given a Type-N (1 or 2) PSE.
  - Tsoft_N: Time from start of transient until power removal but not exceeding 2 seconds, the duration of the applied load transient.

- **pwrdsn_time**: PD Disconnect Shutdown Timing
  - Evaluates PSE disconnect discharge timing as well as output characteristics during power removal.
  - Toff: Power discharge time with hypothetical 320KΩ load.
  - Cout: PSE output capacitance during power discharge
  - Rp: PSE shunt output resistance during power discharge

- **pwrdsn_v**: Post-Overload Shutdown Voltage and Timing
  - Measures PSE post-power-removal characteristics following an overload shutdown condition.
  - Voff: IDLE state voltage between detections after overload shutdown
  - Ted: Time from overload condition shutdown until a detection probe leading to a successful power-up
  - Ved: Peak voltage over the Ted interval

**Configuring and Running the PSE Conformance Test Suite**

The PSE Conformance Test Suite is accessed from either PSA Interactive Software (GUI) or PowerShell PSA, an extended Tcl/Tk command line shell.

Within **PSA Interactive**, two menus are relevant to the PSE Conformance Test Suite. First the **PSE** tab menu allows users to describe, discover, or load previously stored PSE Attributes. These parameters are critical to the behavior of the PSE 2-Pair Conformance Test Suite and should be properly established for any PSE to be tested.
PSE attributes include **PSE Type** (e.g. Type-1, 2, or 3), **PSE Powered Pair** (ALT A or ALT B), **Polarity** (MDI or MDI-X), **Max Power Grant** method (NONE, PHY, LLDP, or PHY+LLDP), and **MPS Method** (DC or AC). If these parameters are not properly described and applied, then the PSE conformance test sequencing may produce errors, inappropriate or missing parameters, or incorrect limit checking. PSE attributes can be automatically discovered from a connected PSE using the Auto Discover menu. They can be saved for future recall using the Save PSE Attr control and they can be recalled and applied to the PSA instrument by using the Load PSE Attr control. One essential attribute, PSE Type, is always displayed in the lower right of the PSA Interactive menu.

In PowerShell PSA, PSE attributes can be auto-discovered using the `psa_auto_port` command and can be recalled using the `psa_pse` command. PSE attributes are saved using the `psa_saveConfig` command.

Once the PSE Type and associated PSE attributes are properly established and applied to the connected PSA instrument, the Cont. Test tab menu is accessed to configure fully automated test sequences.

In the Sequencer menu, two PSE attributes may be overridden:

1. **PSE 30W Grant** method
2. **MPS Method**

Generally, these settings should have been set properly in the PSE tab menu and there should be no need to alter them in this menu.

The **PD Emulation** setting tells the PSE 2-Pair Conformance Tests whether to emulate a Type-1 (or Class 3) PD versus a Type-2 (or Class 4) PD. When testing PSE’s that are limited to 15 W powering, the **30W Grant** should be set to **NONE** and only the **15.4 W** setting should be used. When testing PSE’s that support 30W powering, sequences should be run with both the **15.4 W** setting and then the **30 W** setting. This will provide the maximum test coverage for Class 4 capable PSE’s.

The **Sequencer** menu allows users to select one or more tests that are to be automatically sequenced along with the PSA test ports that will also be sequenced. User’s may also select one of several reporting options, the most common of which will produce a pop-up (Microsoft Excel) spreadsheet report that performs all test parameter limit checking and analysis.

Multi-Port PSE connections can rapidly be verified prior to testing from this menu using the **CHECK CONNECTs** control after checking the desired **Slots and Ports**. Users may opt to have waveform traces produced by each test appear on screen as each test runs. Users may also choose to have the sequence terminate as soon as an error condition develops in any test on any port.

Test sequencing from PowerShell PSA is performed using the **sequence** command and requires that PSE attributes be properly set and applied before executing that command.
The PSE Conformance Test Suite Standard Report

The standard spreadsheet test report for the 2-Pair SE Conformance Test Suite provides efficient feedback by clearly noting any specification compliance violations both by test parameter and by test (PSE) port. The report also accumulates minimum, maximum, and average parameter values across PSE ports so that users can spot individual port deviations and assess performance to design goals. Multiple cycles of testing can be specified to produce one report page per sequence cycle.

All test limit processing automatically adapts to the mode of PD Emulation, the type of PSE (e.g. Type-1, Type-2, or Type-3), and other factors that are specified before the sequence begins. Test limit tables are found on the Limits page of the report.

The report includes a Notes page with detailed explanations of each parameter of each test and an Interop page that rates the “Interop” Risks of any particular combination of specification violations. This leads to an aggregate Interop Index when a high percentage of available tests are run.

The report will automatically scale to the number of tested PSE ports.

![PSE 2-Pair Conformance Test Suite Standard Report (excerpt)](image)

EA PoE Logo Certification

The Ethernet Alliance (EA) introduced an industry program in 2017 to certify PSE’s and powered devices (PD’s) so that interoperability and safety factors associated with PoE network equipment could be better ensured across the industry. The certification program includes a PoE Logo, or mark, that can be applied to certified equipment and to associated literature. Additionally, the program includes a web-based registry describing all certified equipment.

The PSA-CT2P Conformance Test Suite was tested and approved for first party (in-house) EA certification testing. Contact Sifos for further information on this topic.
Ordering Information

PSA-CT2P*, 2-Pair PSE Conformance Test Suite for One PSA Controller (Up to 24 Test Ports)
PSA-CT2P-TS1, Tracking Service, 2-Pair PSE Conformance Suite for One Year for One PSA Controller
PSA-CT2P-TS2, Tracking Service, 2-Pair PSE Conformance Suite for Two Years for One PSA Controller
PSA-CT2P-STS1, Tracking Service, 2-Pair PSE Conformance Suite for One Year for Multiple PSA Controllers
  Installed at a Single Site
PSA-CT2P-STS2, Tracking Service, 2-Pair PSE Conformance Suite for Two Years for Multiple PSA Controllers
  Installed at a Single Site
PSA-QTD, PowerSync Analyzer Test Suite RackPack (e.g. PSA-3248) Discount

*NOTE: PSA-CT2P requires one or more PSA-3x02 test blades, PSA-3x48 RackPack, or PSA-3x02 Compact PSA

Learn MORE about the 2-Pair PSE Conformance Test Suite. See the PSE Conformance Test Suite Demo video presentation at www.sifos.com.