

EA PoE Certification Program Update

Update: April, 2018

Sifos Technologies test equipment may now be utilized to perform Power Sourcing Equipment (PSE) and Powered Device (PD) testing required for **Ethernet Alliance (EA)** PoE Certification. More specifically, the **PSA-3000** PowerSync Analyzer may be utilized for certification testing of 802.3at compliant PSE's and the **PDA-602** Powered Device Analyzer may be utilized for certification testing of 802.3at compliant PD's.



In order to utilize Sifos test equipment for EA certification testing, product designers and manufacturers must first obtain certification from the Ethernet Alliance to operate as an **Authorized Testing Lab** with the purpose to perform **1st Party** testing. There are *clear benefits* to pursuing this certification that will be explained below.

Why Obtain EA PoE Certification

Obtaining EA PoE Certification for a PSE or a PD allows network equipment and device manufacturers to apply an industry recognized **logo**, or certification mark, on their certified products and within associated product literature for those products. The EA logo communicates that the marked product is designed to meet all of the technical requirements essential for safety and interoperability according to the **IEEE 802.3at** industry specification for PSE's and PD's. Customers who deploy PoE in their networks will gain greater confidence that the PoE products they are purchasing are safe, will interoperate correctly, and will not damage non-PoE equipment.

Further, the EA PoE logo clearly and simply communicates a power category for each certified item. This enables users to readily understand if there is a possible mismatch between the power available from a PSE port and the power required by a PD. This feature will especially be vital as the next generation of PoE, **IEEE 802.3bt**, deploys in the coming years.

Information Resources

Webinar	Introducing the Ethernet Alliance Power over Ethernet Certification Tuesday, May 1, 2018 10AM Pacific Daylight Time	Register at: http://bit.ly/EA-PoECertWebinar
Home Page & Program Overview	Ethernet Alliance PoE Certification	Visit: https://ethernetalliance.org/poecert/
Certified Product Registry	The EA maintains a publicly accessible registry of EA certified products including test equipment that may be used by Authorized Test Labs	Visit: https://ea-poe-cert.iol.unh.edu/

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Why Become a 1st Party Authorized Test Lab

The EA PoE Certification Test Program offers two alternatives by which products are tested for EA PoE certification:

3rd Party: Product is submitted to an independent Authorized 3rd Party Test Lab for testing. UNH-IOL is the only 3rd Party Test Lab for EA Certification testing at this time.

1st Party: Product is tested in-house using certified test systems. EA Certification reports are produced and submitted to the Contracted Auditor. UNH-IOL is also the Contracted Auditor.

For producers of PoE equipment, the **1st Party** alternative may offer *significant* benefits.

- **Lower external costs** to obtain and maintain EA logo certifications across a range of products (See [Setting Up An EA Authorized 1st Party Lab](#) below.)
- **Reduced engineering effort** as testing normally performed to verify designs and design changes can also support the certification
- **Faster turn-around** time to obtain and update EA logo certifications
- **Flexibility** to routinely update products and to demonstrate certification compliance with minimal incremental effort
- **Avoid effort** and **information disclosures** required to justify multiple product versions (also referred to as “derivative product”)
- **Overcome technical limitations** of a 3rd Party lab where “worst case” test conditions may be difficult or impossible to produce (e.g. PD’s operating a maximum power draw)

Best of all, many *potential* 1st Party test labs *already own* and are *routinely using* Sifos test instruments and software that are presently qualified to meet the requirements for EA logo certification testing. (See [Sifos Test Equipment Requirements](#) below.)

Setting Up An EA Authorized 1st Party Lab

To become an Authorized 1st Party Lab, a PSE or PD supplier must fulfill the following requirements:

	Provider	Fee Type	Fee Amount
Join Ethernet Alliance	EA	Annual PoE Certification Membership	\$ 3,000*
Obtain CMLA License from EA	EA	One Time	\$ 5,000**
Apply for Device Certification	EA	One Time per Product	\$ 1,000**
Obtain 1 st Party Lab Certification from UNH-IOL	UNH-IOL	Annual	\$ 8,999
Apply for Derivative Product Certification	EA	One Time per Derivative Product	\$ 100

** Higher level EA memberships are available at additional annual cost.

* Discounts may be available given EA special promotions or member-specific circumstances. *Contact the Ethernet Alliance for further information.*

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Authorized 1st party labs are required to be EA members. EA memberships exist at various levels for various fees. The minimum required membership level in this case is \$3000 for a PoE-only membership. One important benefit of the membership is that it reduces cost of CMLA license and each of the application fees for new product and derivative product.

The CMLA license is the legal agreement that defines rules for using the EA PoE logo including how is used, where it is used, and so on. The EA protects against any fraudulent usage of the EA PoE logo through licensing agreements and trademarks.

UNH-IOL is the Authorized 3rd Party Test Lab and the EA Contracted Auditor for the EA PoE logo certification program. In this role they perform testing and auditing to:

- 1) Certify individual products (PSE's and PD's) for EA PoE logos
- 2) Certify test equipment and methods that 1st party test labs can deploy
- 3) Qualify 1st party test labs and review test data produced by 1st party test labs
- 4) Publish and maintain registry of certified PSE's and PD's
- 5) Publish and maintain registry of certified test equipment

An EA Authorized 1st Party Test Lab pays an annual membership fee to the Contracted Auditor, UNH-IOL, for this service. Each 1st party test lab must operate from a single location or facility.

Finally, there are one-time application fees for each new product and each derivative product seeking certification. Applications are submitted to the Ethernet Alliance.

Example: Certify 5 new PSE's and 5 new PD's for EA logos in one year assuming CMLA license executed previously.

EA Membership Fee	\$ 3,000
UNH-IOL Fee	\$ 8,999
Product Application Fees	\$ 10,000 <i>(EA member rate)</i>
Total	\$ 21,999 <i>(\$ 2,200 per product)</i>

By comparison, if the equivalent number of product certifications were performed via 3rd party testing by UNH-IOL for a Non-EA member who had previously obtained the CMLA license:

PSE Testing at UNH-IOL	\$ 24,999 <i>(5 x \$ 4,999)</i>
PD Testing at UNH-IOL	\$ 14,999 <i>(5 x \$ 2,999)</i>
Product Application Fees	\$ 25,000 <i>(10 x \$2,500)</i>
Total	\$ 64,998 <i>(\$ 6,500 per product)</i>

Authorized 1st Party Test Labs obtain certifications by submitting test data (or sanctioned test reports) to UNH-IOL rather than submitting product. Furthermore, Authorized 1st Party Test Labs can similarly obtain certifications for derivative product, that is modifications to previously certified products by submitting updated test data (or sanctioned test reports) to UNH-IOL. This avoids the need to document specifics about each product variant or modification.

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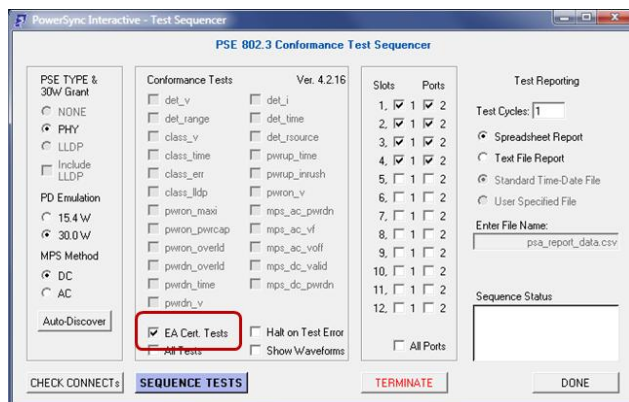
Sifos Test Equipment Requirements

Sifos has applied for and successfully received certification for test equipment to certify both PSE's and PD's for the EA PoE Certification Program. This means that Sifos customers who presently utilize this test equipment may apply to become 1st Party Authorized Test Labs. Existing customers can do so without any further investment in Sifos test equipment.

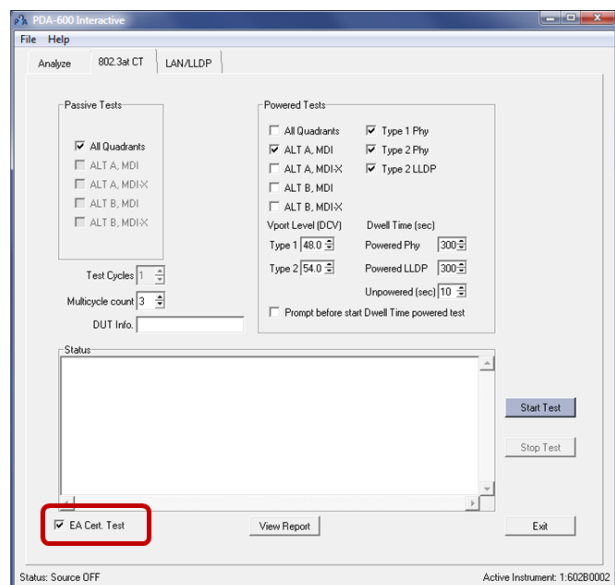
Much like certified PSE's and PD's, test equipment and associated software is certified by hardware, firmware, and software versions. The following table includes Sifos products and versions that have been certified for use by Authorized 1st Party Test Labs.

Application	Hardware	Firmware	Host Software
PSE Testing	PSA-3000 including: PSA-3202 version 8	Controller: 3.14 Test Blade: 4.0c, ALC Firmware v13	4.2.5 (Includes PSE Conformance Test Suite 4.2.13)
	PSA-3000 including: PSA-3102 version 8 and/or PSA-3102 version 6 and/or PSA-3102 version 5 and/or PSA-3102 version 4 and/or PSA-3102 version 3 and/or PSA-3102 version 1	Controller: 3.14 Test Blade: 3.24	
PD Testing	PDA-602B	2.0	1.10
	PDA-602B	1.7	

To pursue EA certification for PSE's and PD's, testing is performed by sequencing the respective Conformance Test Suite (PSE or PD) using the optional selection for "EA Cert. Test". This option is available under the respective Conformance Test menus and also may be specified using command lines that sequence conformance tests.



EA Certification Option in PSA Interactive



EA Certification Option in PDA Interactive

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When the EA Cert. Test option is selected, the available tests will be fixed and, upon completion of the automated testing, a special EA Test Report will be produced. The EA Test Reports are locked Excel spreadsheets that cannot be edited or modified.

EA PoE Certification Test - PSE				802.3at Conformance Report									
February 17 2018 5:41 PM				Sifos Technologies									
Port Count: 4				Test Mode: 30 Watt PHY									
Loop Count: 1				EA Certification: Pass									
PSE Tested: Sample Type-2 PSE				Error Log: None									
Chassis ID: 192.168.221.84	EA Test ID	PSA-3000 Ports			UNITS	Min	Max	Average	Low Limit	P/F	High Limit	P/F	
		2-2	4-2	6-2	8-2								
Test: det_v													
Open Circuit Det Voc	1.2	5.97	5.83	6.15	5.78	volts	5.78	6.15	5.93	2.8	Pass	30	
Peak Det Vvalid	1.3	6.85	6.84	6.91	6.87	volts	6.84	6.91	6.9	3.8	Pass	10	
Min Det Vvalid	1.3	5.21	5.21	5.24	5.19	volts	5.19	5.24	5.2	2.8	Pass	9	
Det Volt Step dVtest	1.3	1.64	1.63	1.67	1.68	volts	1.63	1.68	1.7	1	Pass	7.2	
Detection Slew	1.3	0	0	0	0	V/usec	0	0	0	0	Pass	0.1	
Good Sig Det Pulse	1.3	1	1	1	1	edges	1	1	1	1	Pass	9	
Backoff Voltage	1.9	0.1	0.1	0.1	0.1	volts	0.1	0.1	0.1	0	Pass	2.8	
Non 802 Step Vv		2.13	2.16	2.17	2.14	volts	2.13	2.17	2.2	0		0.1	
High Sig MaxVv		9.35	9.36	9.39	9.34	volts	9.34	9.39	9.4	3.8		11	
Non 802 Discr ?v		0	0	0	0	****	0	0	0	0		0	
Detect Strategyv		1	1	1	1	****	1	1	1	0		2	
Test: det_range													
Rgood Maxv	1.4	27	27	27	28	Kohm	27	28	27.3	26	Pass	32	
Rgood Minv	1.4	16	16	16	18	Kohm	16	18	16.5	16	Pass	19	
Rmid detv	1.8	27	27	27	28	Kohm	27	28	27.3	26	Pass	33	
Rgood Maxv	1.4	0.1	0.1	0.1	0.1	uF	0.1	0.1	0.1	0	Pass	10	
Rbad Cbad State		0	0	0	0	****	0	0	0	0		0	
Test: det_time													
Backoff Time Tdov	1.9	2656	2637	2656	2637	msec	2637	2656	2646.5	-1	Pass	1500	
Eff Backoff Tdov effv		2656	2637	2656	2637	msec	2637	2656	2646.5	-1		1500	
Backoff Typev		0	0	0	0	****	0	0	0	0		0	
Detection Time Tdetv	1.8	66	66	66	66	msec	66	66	66	5	Pass	500	
Total Det Timev	2.14	145	145	145	145	msec	145	145	145	5	Pass	1000	
Test: class_v													
Class Voltage Vclassv	1.5	17.7	17.7	17.8									
Vclass Minv	1.5	17.7	17.6	17.8									
Mark Voltage Vmarkv	1.5	8.5	8.5	8.7									
Mark Voltage Minv	1.5	8.5	8.5	8.4									
Test: class_time													
Event Countv	1.7	2	2	2									
Event1 Tcle1v	1.6	23.3	23.4	23.4									
Event2 Tcle2v	1.6	23.3	25.3	24.2									
Mark Tcle1v	1.6	7.8	5.8	7									
Mark Tcle2v	1.6	169.2	249.2	89.6									
Test: class_err													
Class Limv	1.5	76	77	77									
Pwr Cl Limv	1.5	0	0	0									
Pwr Cl 55v	1.5	0	0	0									
Mark Limv	1.5	6	6	6									
Pwr Cl Unevenv		0	0	0									
Tresetv		398	398	398									
Test: pwrup_time													
Pwr-On Rise Time Trisev		58	99	93									
Power-On Time Tponv	2.13	224.6	304.7	144.5									
Test: pwrup_inrush													
Init Inrushv		436.25	438	442									
Max Inrush c4v	3.17	437.63	439.25	443.63									
Min Inrushv	3.17	436.25	436.5	441									
Tinrushv	3.17	63.9	63.9	63.9									
Inrush 45mv		53.6	53.6	53.6									
Inrush Voltagev		31.5	32.1	32.1									
Max Init Inrushv		436.8	437	441									
Inrush Strategy c4v		0	0	0									
Test: pwr_on_v													
Vport min 2v	2.11	52.7	52.8	52.8									
Vport max 2v	2.11	53.8	53.8	53.8									
Vport ripple 2v	2.10	17	17	18									
Vport noise 2v	2.10	125	122	122									
Vtrans min 2v	2.11	52.5	52.5	52.6									
Vtrans max 2v	2.11	53.9	53.9	54									
Test: pwr_on_pwr_cap													
Rcon c4v		32.6	32.6	32.7									
Icon s c4v	3.15	111	111	111.3									
Type-2 Enablev	1.7	1	1	1									
Test: pwr_on_maxi													
Ilim Peakv		5.3	0.8	1.8									
Ilim Min 2v	3.16	685	684.7	686.7									
Tlim 2v	3.15	63.3	62.9	64.1									
Vlim 2v		52.4	52.4	52.4									
Ilim Max 2v	3.15	836	830.5	835.8									
Ilim Low V Tol 2v		63.3	63.3	61.7									
Ktran lo 2v	2.12	104.3	104.5	104.5									
Test: pwr_on_overid													
Ipeak 2v	3.16	125	125	125									
Vport Ipeak 2v	2.12	52.4	52.5	52.5									
Vport 58DC 2v		52.4	52.5	52.5									
Test: mps_dc_valid													
Min Valid Time Tmpsv	3.29	50	50	50									
Duty Cycle tol1v		1	1	1									
Test: mps_dc_pwr_dn													
Min Valid I holdv	3.19	7	8	7									
Time-to-Shutdown Tmpdov	3.18	341	350	333									
Max Voltage Vopen maxv		0.1	0.2	0.1									
Test: pwr_dn_time													
Turn-Off Time Toffv	3.23	8.5	8.7	9.1									
Output Cap Coutv		0.0487	0.0546	0.0598									
Output Load Rpv		79.2	67.8	63.8									
Test Port Model Number		3202	3102	3102									
Test Port Hardware Version		8	8	8									
Test Port Firmware Version		4.0c	3.23	3.24									

EA Test Report - PD

EA PoE Certification Test - PD				802.3at Conformance Report									
4/16/2018 4:19 PM				Sifos Technologies									
Product Tested: UNDEFINED				Coverage: ALT A MDI Type-1 EA Certification Pass									
				Color Key: ALT B MDI-X Type-2 PHY Type-2 LLDP Pass									
				Serial Number 60480018 Apt Ver: 1.1									
Parameter	EA Test ID	Meas.	Units	Min.	Max.	Average	Low Lim.	High Lim.	P/F				
Detection & Classification													
Rdet	1.2, 1.3	24.97	kohm	24.97	24.97	24.97	23.70	26.30	P				
Rdet_unpwr	1.4	>99.00	kohm	99.00	99.00	99.00	<12.00	>45.00	P				
Cdet		0.09	uF	0.09	0.09	0.09	0.05	0.12	P				
1 Event Classification													
Iclass	1.2, 2.11	39.8	mA	39.8	39.8	39.8	36.0	44.0	P				
IclassNum	2.11	4		4	4	4	0	4	P				
Tclass	2.13	0.0005	sec	0.0005	0.0005	0.0005	0.0005	0.0050	P				
ClassStability	2.13	1		1	1	1	1	1	P				
2 Event Classification													
Iclass_event1	1.2, 2.12	39.8	mA	39.8	39.8	39.8	36.0	44.0	P				
Iclass_event2	1.2, 2.12	39.8	mA	39.8	39.8	39.8	36.0	44.0	P				
Mark1	2.12	0.99	mA	0.99	0.99	0.99	0.25	4.00	P				
ClassNum2	2.12	4		4	4	4	0	4	P				
Tclass_event1	2.13	0.0005	sec	0.0005	0.0005	0.0005	0.0005	0.0050	P				
Tclass_event2	2.13	0.0005	sec	0.0005	0.0005	0.0005	0.0005	0.0050	P				
ClassStability_event1	2.13	1		1	1	1	1	1	P				
ClassStability_event2	2.13	1		1	1	1	1	1	P				
Power-Up / Down													
Inrush1	1.8	216.9	mA	216.9	216.9	216.9	0.0	400.0	P				
Inrush1_2	1.8	191.0	mA	191.0	191.0	191.0	0.0	400.0	P				
Pmax_Tdelay	1.8	4.7	W	4.7	4.7	4.7	0.0	14.4	P				
Von	1.6	37.9	VDC	37.9	37.9	37.9	30.0	42.0	P				
Voff	1.6	33.5	VDC	33.5	33.5	33.5	30.0	37.0	P				
Backleedv	1.1	0.1	VDC	0.1	0.1	0.1	0.0	2.8	P				
MDI Powered Type-1													
Ppeak_1	1.9, 2.10	7.09	W	7.09	7.09	7.09	0.0	14.4	P				
Pavg_1	1.5, 2.10	6.47	W	6.47	6.47	6.47	0.0	13.0	P				
MPSViolation_1	1.7	0		0	0	0	0	0	P				
TcutWindowViolation_1	1.9	0		0	0	0	0	0	P				
DutyCycleViolation_1	1.9	0		0	0	0	0	0	P				
MDI Powered Type-2 PHY													
Ppeak_2</													