DIGITUS®

*Application Report*
*PSA-3402 – November 2024*

# *SIFOs 802.3at Conformance Report, v 5.4.09, DN-95331: 10” Switch*

## 1 Sifos Technologies

Sifos Technologies provides a one-box solution to facilitate complete testing and analysis of Power Sourcing Equipment (PSE) behaviors and overall compliance to the IEEE 802.3at specification. The PSE Conformance Test Suite serves as a virtual industry standard for PSE specification compliance. SIFOS test coverage exceeds 95% of 802.3at PSE PICS

## 2 Enhanced Test Conditions

In additional to just running the basic conformance testing on an individual port and to better recreate the system-level environment, ASSMANN individually tests all ports of its PSE controller devices while having the background ports running at various PoE-application conditions. ASSMANN further, repeats testing conditions over extended periods of time to ensure performance is consistent after multiple hours, days and/or continued operation.


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## PSE Conformance Test Suite

**November 13 2024 11:34 AM**

Port Count..... 1

Loop Count..... 1

PSE Tested: **Results Type-2 30W**

Sifos Technologies

**802.3at Conformance Report**

*version5.4.09*

**Test Mode:** **30 Watt PHY** *report ver. 5.4.03*

**Sifos Interop Index*:** **100%** *S/N: 34020093A*

*Error Log:* None

| Chassis ID:192.168.221.105 | PSA-3402 Ports | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TestLoop: 1 | 1-1 | UNITS | Min | Max | Average | Low Limit | P/F | High Limit | P/F |
| **Test: det_v** | | | | | | | | | |
| Open_Circuit_Det_Voc= | 19.95 | V | 19.95 | 19.95 | 19.95 | 2.8 | Pass | 30 | Pass |
| Peak_Det_Vvalid= | 7.04 | V | 7.04 | 7.04 | 7 | 3.8 | Pass | 10 | Pass |
| Min_Det_Vvalid= | 4.51 | V | 4.51 | 4.51 | 4.5 | 2.8 | Pass | 9 | Pass |
| Det_Volt_Step_dVtest= | 2.52 | V | 2.52 | 2.52 | 2.5 | 1 | Pass | 7.2 | Pass |
| Detection_Slew= | 0 | V/usec | 0 | 0 | 0 | 0 | Pass | 0.1 | Pass |
| Good_Sig_Det_Pulse= | 3 | edges | 3 | 3 | 3 | 1 | Pass | 9 | Pass |
| Backoff_Voltage= | 0.5 | V | 0.5 | 0.5 | 0.5 | 0 | Pass | 2.8 | Pass |
| Non_802_Discr_?= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 0 | Pass |
| Detect_Strategy= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 2 | Pass |
| **Test: det_i** | | | | | | | | | |
| Init_Current_Isc= | 0.19 | mA | 0.19 | 0.19 | 0.19 | 0 | Pass | 5 | Pass |
| Det_Current_Isc= | 0.21 | mA | 0.21 | 0.21 | 0.21 | 0 | Pass | 5 | Pass |
| **Test: det_range** | | | | | | | | | |
| Rgood_Max= | 28 | Kohm | 28 | 28 | 28 | 26 | Pass | 32 | Pass |
| Rgood_Min= | 17 | Kohm | 17 | 17 | 17 | 16 | Pass | 19 | Pass |
| Rmid_det= | 28 | Kohm | 28 | 28 | 28 | 26 | Pass | 33 | Pass |
| Cgood_Max= | 0.1 | uF | 0.1 | 0.1 | 0.1 | 0 | Pass | 10 | Pass |
| Rbad_Cbad_Stat= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 0 | Pass |
| 4Pair_Pwr_?= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 0 | Pass |
| **Test: det_time** | | | | | | | | | |
| Backoff_Time_Tdbo= | 86 | msec | 86 | 86 | 86 | -1 | Pass | 1500 | Pass |
| Eff_Backoff_Tdbo_eff= | 86 | msec | 86 | 86 | 86 | -1 | Pass | 1500 | Pass |
| Backoff_Type= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 0 | Pass |
| Detection_Time_Tdet= | 322 | msec | 322 | 322 | 322 | 5 | Pass | 500 | Pass |
| Total_Det_Time= | 324 | msec | 324 | 324 | 324 | 5 | Pass | 1000 | Pass |
| **Test: det_rsource** | | | | | | | | | |
| PSE_Detect_Source= | 1 | **** | 1 | 1 | 1 | 0 | Pass | 1 | Pass |
| Output_Impedance_Zout= | 450 | Kohm | 450 | 450 | 450 | 45 | Pass | 2000 | Pass |
| **Test: class_v** | | | | | | | | | |
| Vclass_Max= | 19 | V | 19 | 19 | 19 | 15.5 | Pass | 20.5 | Pass |
| Vclass_Min= | 18.6 | V | 18.6 | 18.6 | 18.6 | 15.5 | Pass | 20.5 | Pass |
| Mark_Voltage_Vmark= | 8.5 | V | 8.5 | 8.5 | 8.5 | 7 | Pass | 10 | Pass |
| Mark_Voltage_Min= | 8.4 | V | 8.4 | 8.4 | 8.4 | 7 | Pass | 10 | Pass |
| **Test: class_time** | | | | | | | | | |
| Class_0_Count= | 1 | **** | 1 | 1 | 1 | 1 | Pass | 2 | Pass |
| Class_Time_Tpdc= | 11 | msec | 11 | 11 | 11 | 6 | Pass | 75 | Pass |
| Class_4_Count= | 2 | **** | 2 | 2 | 2 | 2 | Pass | 2 | Pass |
| Event1_Tcle1= | 10.7 | msec | 10.7 | 10.7 | 10.7 | 6 | Pass | 30 | Pass |
| Event2_Tcle2= | 10.9 | msec | 10.9 | 10.9 | 10.9 | 6 | Pass | 30 | Pass |
| Mark_Tme1= | 7.6 | msec | 7.6 | 7.6 | 7.6 | 6 | Pass | 12 | Pass |
| Mark_Tme_Last= | 8.6 | msec | 8.6 | 8.6 | 8.6 | 6 | Pass | 376 | Pass |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mark_Tme1_LowI= | 7 | msec | 7 | 7 | 7 | 6 | Pass | 12 | Pass |
| **Test: class_err** | | | | | | | | | |
| Class_lim= | 76 | mA | 76 | 76 | 76 | 51 | Pass | 100 | Pass |
| Pwr_Cl_lim= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 0 | Pass |
| Pwr_Cl_55= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 0 | Pass |
| Mark_lim= | 6 | mA | 6 | 6 | 6 | 5 | Pass | 100 | Pass |
| Pwr_Cl_Uneven= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 0 | Pass |
| Treset= | 94 | msec | 94 | 94 | 94 | 15 | Pass | 10000 | Pass |
| **Test: pwrup_time** | | | | | | | | | |
| Power-On_Trise_c0= | 40 | usec | 40 | 40 | 40 | 15 | Pass | 50000 | Pass |
| Power-On_Tpon_c0= | 11.7 | msec | 11.7 | 11.7 | 11.7 | 0 | Pass | 400 | Pass |
| Power-On_Trise_c4= | 44 | usec | 44 | 44 | 44 | 15 | Pass | 50000 | Pass |
| Power-On_Tpon_c4= | 39.1 | msec | 39.1 | 39.1 | 39.1 | 0 | Pass | 400 | Pass |
| **Test: pwrup_inrush** | | | | | | | | | |
| Init_Iinrush= | 416.38 | mA | 416.38 | 416.38 | 416.4 | 400 | Pass | 450 | Pass |
| Max_Iinrush_c0= | 415.75 | mA | 415.75 | 415.75 | 415.8 | 400 | Pass | 450 | Pass |
| Max_Iinrush_c4= | 416.88 | mA | 416.88 | 416.88 | 416.9 | 400 | Pass | 450 | Pass |
| Min_Iinrush= | 414.75 | mA | 414.75 | 414.75 | 414.8 | 400 | Pass | 450 | Pass |
| Tinrush= | 60.7 | msec | 60.7 | 60.7 | 60.7 | 50 | Pass | 75 | Pass |
| Inrush_45m= | 53 | V | 53 | 53 | 53 | 50 | Pass | 57 | Pass |
| Inrush_Voltage= | 30.6 | V | 30.6 | 30.6 | 30.6 | 30 | Pass | 57 | Pass |
| Inrush_Strategy_c0= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 1 | Pass |
| Inrush_Strategy_c4= | 0 | **** | 0 | 0 | 0 | 0 | Pass | 1 | Pass |
| LowV_Inrush= | 246.8 | mA | 246.8 | 246.8 | 247 | 60 | Pass | 450 | Pass |
| **Test: pwron_v** | | | | | | | | | |
| Vport_min= | 52.1 | V | 52.1 | 52.1 | 52.1 | 50 | Pass | 57 | Pass |
| Vport_max= | 53.2 | V | 53.2 | 53.2 | 53.2 | 50 | Pass | 57 | Pass |
| Vport_ripple= | 23 | mVpp | 23 | 23 | 23 | 0 | Pass | 500 | Pass |
| Vport_noise= | 102 | mVpp | 102 | 102 | 102 | 0 | Pass | 200 | Pass |
| Vtrans_min= | 52 | V | 52 | 52 | 52 | 50 | Pass | 57 | Pass |
| Vtrans_max= | 53.3 | V | 53.3 | 53.3 | 53.3 | 50 | Pass | 57 | Pass |
| **Test: pwron_pwrcap** | | | | | | | | | |
| Pcon_c0= | 18.5 | W | 18.5 | 18.5 | 18.5 | 14.2 | Pass | 22.7 | Pass |
| Icon_%_c0= | 133.7 | % | 133.7 | 133.7 | 133.7 | 100 | Pass | 9999 | Pass |
| Pcon_c1= | 18.5 | W | 18.5 | 18.5 | 18.5 | 3.9 | Pass | 22.7 | Pass |
| Icon_%_c1= | 472.7 | % | 472.7 | 472.7 | 472.7 | 100 | Pass | 9999 | Pass |
| Pcon_c2= | 18.5 | W | 18.5 | 18.5 | 18.5 | 6.8 | Pass | 22.7 | Pass |
| Icon_%_c2= | 276 | % | 276 | 276 | 276 | 100 | Pass | 9999 | Pass |
| Pcon_c3= | 18.5 | W | 18.5 | 18.5 | 18.5 | 14.2 | Pass | 22.7 | Pass |
| Icon_%_c3= | 133.7 | % | 133.7 | 133.7 | 133.7 | 100 | Pass | 9999 | Pass |
| Pcon_c4= | 32.5 | W | 32.5 | 32.5 | 32.5 | 28.7 | Pass | 38.9 | Pass |
| Icon_%_c4= | 110.3 | % | 110.3 | 110.3 | 110.3 | 100 | Pass | 9999 | Pass |
| Type-2_Enable= | 1 | **** | 1 | 1 | 1 | 1 | Pass | 1 | Pass |
| **Test: pwron_maxi** | | | | | | | | | |
| Ilim_Peak_1= | 94.3 | mA | 94.3 | 94.3 | 94.3 | 0 | Pass | 1750 | Pass |
| Ilim_Min_1= | 401.3 | mA | 401.3 | 401.3 | 401.3 | 400 | Pass | 1750 | Pass |
| Tlim_1= | 61.7 | msec | 61.7 | 61.7 | 61.7 | 10 | Pass | 9999 | Pass |
| Vlim_1= | 52.4 | V | 52.4 | 52.4 | 52.4 | 50 | Pass | 57 | Pass |
| Ilim_Max_1= | **97** | mA | 97 | 97 | 97 | 0 | Pass | 1750 | Pass |
| Ktran_lo_1= | 104.7 | % | 104.7 | 104.7 | 104.7 | 92.4 | Pass | 115 | Pass |
| Ilim_Peak_2= | 96.5 | mA | 96.5 | 96.5 | 96.5 | 0 | Pass | 1750 | Pass |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Ilim_Min_2= | 684.8 | mA | 684.8 | 684.8 | 684.8 | 683 | Pass | 1750 | Pass |
| Tlim_2= | 61.3 | msec | 61.3 | 61.3 | 61.3 | 10 | Pass | 75 | Pass |
| Vlim_2= | 51.9 | V | 51.9 | 51.9 | 51.9 | 50 | Pass | 57 | Pass |
| Ilim_Max_2= | 948.3 | mA | 948.3 | 948.3 | 948.3 | 683 | Pass | 1750 | Pass |
| Ktran_lo_2= | 103.4 | % | 103.4 | 103.4 | 103.4 | 92.4 | Pass | 115 | Pass |
| **Test: pwron_overld** | | | | | | | | | |
| %Ipeak_1= | 125 | % | 125 | 125 | 125 | 100 | Pass | 125 | Pass |
| Vport_Ipeak_1= | 52.5 | V | 52.5 | 52.5 | 52.5 | 50 | Pass | 57 | Pass |
| Vport_5%DC_1= | 52.6 | V | 52.6 | 52.6 | 52.6 | 50 | Pass | 57 | Pass |
| %Ipeak_2= | 125 | % | 125 | 125 | 125 | 100 | Pass | 125 | Pass |
| Vport_Ipeak_2= | 51.9 | V | 51.9 | 51.9 | 51.9 | 50 | Pass | 57 | Pass |
| Vport_5%DC_2= | 52 | V | 52 | 52 | 52 | 50 | Pass | 57 | Pass |
| **Test: mps_dc_valid** | | | | | | | | | |
| Min_Valid_Time_Tmps= | 50 | msec | 50 | 50 | 50 | 1 | Pass | 60 | Pass |
| Duty_Cycle_tol= | 1 | **** | 1 | 1 | 1 | 1 | Pass | 1 | Pass |
| **Test: mps_dc_pwrdn** | | | | | | | | | |
| Min_Valid_I_hold= | 8 | mA | 8 | 8 | 8 | 5 | Pass | 10 | Pass |
| Time-to-Shutdown_Tmpdo= | 362 | msec | 362 | 362 | 362 | 300 | Pass | 400 | Pass |
| **Test: pwrdn_overld** | | | | | | | | | |
| Icut_1= | 369 | mA | 369 | 369 | 369 | -1 | Pass | 1750 | Pass |
| Tcut_1= | 62.5 | msec | 62.5 | 62.5 | 62.5 | 50 | Pass | 9999 | Pass |
| Isoft_1= | -1 | mA | -1 | -1 | -1 | -1 | Pass | 683 | Pass |
| Tsoft_1= | -1 | msec | -1 | -1 | -1 | -1 | Pass | 2000 | Pass |
| Icut_2= | 637 | mA | 637 | 637 | 637 | -1 | Pass | 1750 | Pass |
| Tcut_2= | 61.9 | msec | 61.9 | 61.9 | 61.9 | 10 | Pass | 9999 | Pass |
| Isoft_2= | -1 | mA | -1 | -1 | -1 | -1 | Pass | 683 | Pass |
| Tsoft_2= | -1 | msec | -1 | -1 | -1 | -1 | Pass | 2000 | Pass |
| **Test: pwrdn_time** | | | | | | | | | |
| Turn-Off_Time_Toff= | 21.8 | msec | 21.8 | 21.8 | 21.8 | 0 | Pass | 500 | Pass |
| Output_Cap_Cout= | 0.0806 | uF | 0.0806 | 0.0806 | 0.08 | -1 | Pass | 0.52 | Pass |
| Output_Load_Rp= | 135.6 | Kohm | 135.6 | 135.6 | 136 | 45 | Pass | 50000 | Pass |
| **Test: pwrdn_v** | | | | | | | | | |
| Avg_Idle_Voff= | 0.1 | V | 0.1 | 0.1 | 0.1 | 0 | Pass | 2.8 | Pass |
| Error_Delay_Ted= | 1390.6 | msec | 1390.6 | 1390.6 | 1391 | 750 | Pass | 10000 | Pass |
| Peak_Error_Delay_Ved= | 0.6 | V | 0.6 | 0.6 | 0.6 | 0 | Pass | 20.5 | Pass |


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