802.3at PD PICS Coverage

Sifos Technologies

ITEM	TEST CASE	SECTION REFERENCE IN IEEE 802.3at	PDA-300 Coverage	Value/Comment	Associated PDA-300 Method
PD1	Accept power	33.3.1	COVERED	On either set of PI conductors	Inherently covered by ALT-A and Alt-B tests
PD2	Polarity insensitive	33.3.1	COVERED	Both Mode A and Mode B per Table 33–13	Inherently covered by MID and MDI-X tests
PD3	Source power	33.3.1		The PD does not source power on its PI	*Not Tested*
PD4	Voltage tolerance	33.3.1	COVERED	Withstand 0 V to 57 V at the PI indefinitely without permanent damage	Load Meter / Load Monitor Assessments
PD5	Underpowered Type 2 PD	33.3.2	COVERED	If PD does not successfully observe 2-Event Physical Layer classification or Data Link Layer classification, conforms to Type 1 PD power restrictions and provides the user with an active indication if underpowered	802.3at Test: **Pclass_PD_1**, **Ppeak_PD_1**, **P_type-1**
PD6	Current unbalance	33.3.2		Type 2 PDs meet the requirements	*Not Tested*
PD7	PD behavior	33.3.3	PARTIAL COVERAGE	According to state diagram shown in Figure 33–16	802.3at Test: **R_detect**, **I_class**, **Pclass_PD_1**, **P_type-1**, **Pclass_PD_2**
PD8	Valid and non-valid detection signatures	33.3.4	COVERED	Presented between positive VPD and negative VPD on each set of pairs defined in 33.3.1	802.3at Test: **R_detect**, **C_detect** (4 quadrant)
PD9	Non-valid detection signature	33.3.4		When powered, present an invalid signature on the set of pairs not drawing power	*Not Tested*
PD10	Valid detection signature	33.3.4	PARTIAL COVERAGE	Characteristics defined in Table 33-14	802.3at Test: **R_detect, C_detect** (4 quadrant). *R_Detect is limited to 4V, 8V VPD, C_Detect test initiated at 5V VPD. V_Offset, PI Voltage, and Inductance are Not Tested*
PD11	Non-valid detection signature	33.3.4	COVERED	Exhibit one or both of the characteristics described in Table 33–15	802.3at Test: **R_detect**, **C_detect** (4 quadrant)
PD12	PD classifications	33.3.5	COVERED	Meets at least one permutation listed in Table 33–8	802.3at Test: **I_Class**, **Class**
PD13	PD implementing 2-Event class signature	33.3.5.1	COVERED	Returns Class 4	802.3at Test: **I_Class**, **Class**
PD14	Type 2 PD classification behavior	33.3.5.1	PARTIAL COVERAGE	Conforms to electrical specifications in Table 33–17	802.3at Test: **I_Class**, **Class, I_Mark** (*Thresholds and Vreset are not tested*)
PD15	Classification signature	33.3.5.1	COVERED	As defined in Table 33–16	802.3at Test: **I_Class**
PD16	Classification signature	33.3.5.1		One classification signature during classification	*Not Tested*
PD17	2-Event class signature	33.3.5.2	COVERED	Class 4 in accordance with the maximum power draw as specified in Table 33–18	802.3at Test: **I_Class**, **Class**, **Pclass_PD_2**, **Ppeak_PD_2**, **P_type1**
PD18	2-Event class signature behavior	33.3.5.2	COVERED	As defined in Table 33–17	802.3at Test: **I_Class**, **I_Mark**, **Class**, **Pclass_PD_2**, **Ppeak_PD_2**, **P_type1**
PD19	Type 2 PD electrical requirements	33.3.5.2	COVERED	As defined by Table 33–18 of the Type defined in its pse_power_type state variable	802.3at Test: **I_Class**, **Class**, **Pclass_PD_2**, **Ppeak_PD_2**, **P_type1**
PD20	Mark event current and 2-Event class signature	33.3.5.2.1	COVERED	Draw IMark and present a nonvalid detection signature as defined in Table 33–15	802.3at Test: **I_Mark** (nonvalid detection signature is implicit in I_Mark test)
PD21	Mark event current limits	33.3.5.2.1	COVERED	Not exceed IMark when voltage at the PI enters VMark as defined in Table 33–17	802.3at Test: **I_Mark**
PD22	PD current draw	33.3.5.2.1		IMark until the PD transitions from DO_MARK_EVENT state to the IDLE state	*Not Tested*
PD23	PSE identification	33.3.6	PARTIAL COVERAGE	Identify as Type 1 or Type 2 (see Figure 33–16)	802.3at Test: **I_Class**, **Class**, **Pclass_PD_1**, **Pclass_PD_2**, **P_type1** (*LLDP identifcation not included*)
PD24	PD power supply	33.3.7	PARTIAL COVERAGE	Operate within the characteristics in Table 33–18 **Table Includes tests PD25 through PD43**	*See PD25-PD43*
PD25	PD turn on voltage	33.3.7.1	COVERED	PD turns on at a voltage less than or equal to Von	802.3at Test: **V_on**
PD26	PD stay on voltage	33.3.7.1	COVERED	Stay on for all voltages in the range of VPort_PD	Load Meter / Load Monitor Assessments
PD27	PD turn off voltage	33.3.7.1	COVERED	Turn off at a voltage less than VPort_PD min and greater than Voff	802.3at Test: **V_off**
PD28	Startup oscillations	33.3.7.1	COVERED	Shall turn on or off without startup oscillations and within the first trial at any load value	Load Meter / Load Monitor Assessments
PD29	PPort_PD definition	33.3.7.2.1	COVERED	When PD is fed by VPort_PD min to VPort_PD max with RCh (as defined in Table 33–1) in series	All PDA-300 Testing Performed At Minimum Cable Distance from PD
PD30	Type 2 PD input inrush current	33.3.7.3	COVERED	With pse_power_type state set to 2 prior to power-on, operate as a Type 1 PD for at least Tdelay min	802.3at Test: **P_Type_1**, **Inrush_E**
PD31	Input inrush current	33.3.7.3	COVERED	Limited by the PD if Cport is greater than or equal to 180 µF so that IInrush_PD max is satisfied.	802.3at Test: **Inrush_E** *(Cport is not tested, Inrush_E approximates Inrush using Capacitive charging energy (Watt-sec) over worst 20ms sub-interval of Iinrush interval)*
PD32	Peak power	33.3.7.4	PARTIAL COVERAGE	Not to exceed PClass_PD max for more than TCUT min and 5% duty cycle	802.3at Test: **Ppeak_PD_1**, **Ppeak_PD_2**. Load Meter provides test capability over user-controlled durations. *(5% Duty Cycle is not tested)*
PD33	Peak operating power	33.3.7.4	PARTIAL COVERAGE	Not to exceed Ppeak max	802.3at Test: **Ppeak_PD_1**, **Ppeak_PD_2**. Load Monitor provides test capability over user-controlled durations. *(5% Duty Cycle is not tested)*
PD34	RMS, DC, and ripple current	33.3.7.4	PARTIAL COVERAGE	Bounded by Equation (33–10)	802.3at Test: **Max_Load_1**, **Max_Load_2** (*These are peak current levels* .)
PD35	Maximum IPort for all operating VPort_PD	33.3.7.4	COVERED	Defined by Equation (33–11)	802.3at Test: **Max_Load_1**, **Max_Load_2**
PD36	Peak transient current	33.3.7.5		Not to exceed 4.70 mA/µs in either polarity	*Not Tested*
PD37	Specifications for IPDUT	33.3.7.5	COVERED	Operate below upperbound template defined in Figure 33–18	802.3at Test: **Pclass_PD_1**, **Pclass_PD_1**, **Ppeak_PD_1**, **Ppeak_PD_2**
PD38	Behavior during transients at the PSE PI	33.3.7.6		As specified in 33.3.7.6	*Not Tested*
PD39	Ripple and noise	33.3.7.7		As specified in Table 33–18 for the common-mode and/or differential pair-to-pair noise at the PD PI	*Not Tested*
PD40	Ripple and noise specification	33.3.7.7		For all operating voltages in the range defined by VPort_PD in Table 33–18	*Not Tested*
PD41	Ripple and noise presence	33.3.7.7		Operates in the presence of ripple and noise generated by the PSE that appears at the PD PI	*Not Tested*
PD42	Classification stability	33.3.7.8		Class signature valid within Tclass and remains valid for the duration of the classification period	*Not Tested*
PD43	Backfeed voltage	33.3.7.9		Mode A and Mode B per 33.3.7.9	*Not Tested*
PD44	Maintain power signature	33.3.8	COVERED	PD provides a valid MPS at the PI as defined in 33.3.8	802.3at Test: **MPS_Load_1**, **MPS_Load_2**
PD45	No longer require power	33.3.8	COVERED	Remove both components of the Maintain Power Signature	Load Meter / Load Monitor Assessments

Verification, Simplified.