

### 0.0.0.1 Link Segment

Item	Feature	Subclause	Status	Support	Value/Comment
LNK1	DC loop resistance	104.2	M	Yes [ ]	Less than $6.5\Omega$

### 0.0.0.2 Power sourcing equipment (PSE)

Item	Feature	Subclause	Status	Support	Value/Comment
PSE1	Voltage and power requirements	104.3.2	M	Yes [ ]	As defined in Table 104-1 for each relevant system class
PSE2	PSE behavior	104.3.3	M	Yes [ ]	In accordance with state diagram shown in Figure 104-4
PSE3	Applying power	104.3.3.1	M	Yes [ ]	Not until a detection of a valid PD is present
PSE4	Power not supplied within $T_{inrush}$ with SCCP disabled	104.3.3.1	M	Yes [ ]	Wait for TED before attempting to apply power again
PSE5	Power not supplied within $T_{inrush}$ with SCCP enabled	104.3.3.1	M	Yes [ ]	Initiate and successfully complete PD classification before attempting to apply power again
PSE6	pi_powered variable	104.3.3.3	M	Yes [ ]	If false, do not apply power to the PI. If True, apply power to the PI
PSE7	sleep_detected variable	104.3.3.3	M	Yes [ ]	TBD
PSE8	wakeup_detected variable	104.3.3.3	M	Yes [ ]	TBD
PSE9	PSE probing	104.3.4	M	Yes [ ]	Probe the PI in order to detect a valid PD signature
PSE10	Detection currents	104.3.4.1	M	Yes [ ]	Within $I_{valid}$ current range specified in Table 104-2 with a valid PD detection signature as specified in Table 104-4
PSE11	Accept valid PD signature	104.3.4.2	M	Yes [ ]	From link segment with a constant voltage in the range of $V_{good\_PSE}$ in response to a probing current in the range of $I_{valid}$ as specified in Table 104-2
PSE12	Reject invalid PD signature	104.3.4.3	M	Yes [ ]	From link segment that exhibits the following characteristics outlined in Table 104-2 and Table 104-5: a) Constant voltage less than or equal to $V_{bad\_lo\_PSE}^{max}$ b) Constant voltage greater than or equal to $V_{bad\_hi\_PSE}^{min}$ c) Capacitance greater than or equal to $C_{bad}^{min}$
PSE13	Applying power with SCCP enabled	104.3.5	M	Yes [ ]	Only after attempting to complete classification and mutual identification

PSE14	Providing power to the PSE PI	104.3.6	M	Yes [ ]	To conform to electrical limits set out in Table 104-3
PSE15	PSE output	104.3.6	M	Yes [ ]	To conform with electrical requirements set out in Table 104-5 in both powered and unpowered modes
PSE16	PI SLEEP voltage while in SLEEP state	104.3.6.1	M	Yes [ ]	Within $V_{Sleep}$ range outlined in Table 104-3
PSE17	SLEEP_SETTLE state	104.3.6.1	M	Yes [ ]	Discharge the PSE PI to the range of $V_{Sleep}$
PSE18	PD sleep request while in POWER_ON state	104.3.6.4	M	Yes [ ]	Valid if $I_{Port}$ averaged over sliding window $t_{Sleep}$ wide is less than or equal to $I_{Sleep min}$
PSE19	PI discharge while in SLEEP_SETTLE state	104.3.6.4	M	Yes [ ]	To the range of $V_{Sleep}$ with a current greater than $I_{discharge}$
PSE20	PD wakeup request while in SLEEP state	104.3.6.4	M	Yes [ ]	Valid if $I_{Port}$ is greater than $I_{Wakeup min}$ for a minimum of $t_{Wakeup}$
PSE21	Power not applied as specified	104.3.6.5	M	Yes [ ]	New detection cycle initiated before power application
PSE22	$V_{PSE}$ to $V_{Off}$ discharge time	104.3.6.6	M	Yes [ ]	Defined as $T_{Off}$ in Table 104-3
PSE23	$P_{Class}$	104.3.6.7	M	Yes [ ]	As defined in Table 104-1
PSE24	Measurement of $P_{Class}$	104.3.6.7	M	Yes [ ]	Averaged from uniform sliding window of 1 second wide
PSE25	PSE PI power removal while in SLEEP state	104.3.7	M	Yes [ ]	In absence of PD Maintain Power Signature
PSE26	MPS present	104.3.7.1	M	Yes [ ]	If $I_{Port}$ averaged over sliding window $T_{MPS}$ wide is greater than or equal to $I_{Hold max}$
PSE27	MPS absent	104.3.7.1	M	Yes [ ]	If $I_{Port}$ averaged over sliding window $T_{MPS}$ wide is less than or equal to $I_{Hold min}$
PSE28	MPS absent for duration greater than $TMPDO$	104.3.7.1	M	Yes [ ]	Remove power from the PI

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**0.0.0.3 Powered Device (PD)**

Item	Feature	Subclause	Status	Support	Value/Comment
PD1	Voltage and power requirements	104.4.2	M	Yes [ ]	As defined in Table 104-1 for each relevant system class
PD2	PD behavior	104.4.3	M	Yes [ ]	In accordance with state diagram shown in Figure 104-6
PD3	Present constant voltage signature	104.4.3.1	M	Yes [ ]	If PD input voltage is less than $V_{sig\_disable}$
PD4	Remove constant voltage signature	104.4.3.1	M	Yes [ ]	When input voltage exceeds $V_{sig\_disable}$ and wait $t_{pwr\_delay}$ before drawing power from the MDI
PD5	PD fault or MPS removal	104.4.3.1	M	Yes [ ]	Rising $V_{PD}$ edge through the $V_{on(max)}$ causing PD to re-enable MDI power after delay of $t_{pwr\_delay}$
PD6	Detection signature	104.4.4	M	Yes [ ]	Present either valid or non-valid at the PI
PD7	Valid detection signature	104.4.4	M	Yes [ ]	In accordance with the characteristics shown in Table 104-4
PD8	Non-valid detection signature	104.4.4	M	Yes [ ]	In accordance with at least one of the characteristics shown in Table 104-5
PD9	PD power	104.4.6	M	Yes [ ]	In accordance with the characteristics shown in Table 104-6
PD10	SLEEP and WAKEUP state input voltages	104.4.6.1	M	Yes [ ]	In the range of $V_{Sleep\_PD}$ as specified in Table 104-6
PD11	PD stability	104.4.6.3	M	Yes [ ]	When PD is fed voltage between $V_{Port\_PSEmin}$ and $V_{Port\_PSEmax}$ with $R_{Loop\_max}$ in series, $P_{Port\_PD}$ is defined by equation 104-1
PD12	PD ripple and noise	104.4.6.4	M	Yes [ ]	In accordance with specifications shown in Table 104-6 for all operating voltages in the range of $V_{Port\_PD}$ and over the range of input power of the device
PD13	PSE ripple and noise	104.4.6.4	M	Yes [ ]	Operate in accordance to the levels specified in Table 104-3 in the presence of PSE ripple and noise appearing at the PD PI
PD14	Input current while in SLEEP_PENDING and SLEEP states	104.4.6.5	M	Yes [ ]	Drawn current is averaged over sliding window $t_{Sleep}$ wide in the range of $I_{Sleep}$ as specified in Table 104-6
PD15	Input current while in WAKEUP state	104.4.6.5	M	Yes [ ]	Drawn current is within range of $I_{Wakeup\_PD}$ as specified in table 104-6

PD16	PD maintain power signature	104.4.7	M	Yes [ ]	Provide valid MPS at PI
PD17	PD maintain power signature current draw	104.4.7	M	Yes [ ]	Equal to or greater than $I_{Hold\_PD(min)}$ when averaged over sliding window $T_{MPS}$ wide
PD18	No longer require power	104.4.7	M	Yes [ ]	Remove current draw of the MPS from the PI

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**0.0.0.4 Common Electrical**

Item	Feature	Subclause	Status	Support	Value/Comment
COME L1	PI output conductor pair fault tolerance	104.5.2	M	Yes [ ]	Meet the requirements of the appropriate specifying clause (See Clauses 96 and 97)
COME L2	100BASE-T1 PoDL system MDI return loss	104.5.3.1	M	Yes [ ]	Meet or exceed Equation 104-2
COME L3	Testing MDI return loss requirement in the presence of PI load current	104.5.3.1	M	Yes [ ]	Meet or exceed requirement given in equation 104-2
COME L4	Positive and negative droop magnitude	104.5.3.1	M	Yes [ ]	Less than TBD%

**0.0.0.5 PSE Electrical**

Item	Feature	Subclause	Status	Support	Value/Comment
PSEEL 1	PSE PI	104.5.2	M	Yes [ ]	Withstand the application of short circuits between the wires within the cable for an indefinite period of time without damage
PSEEL 2	Short circuit current magnitude	104.5.2	M	Yes [ ]	Not to exceed $I_{LIMmax}$ as defined in Table 104-3 given an indefinite short circuit

**0.0.0.6 PD Electrical**

Item	Feature	Subclause	Status	Support	Value/Comment
PDEL1	DC isolation	104.5.1	M	Yes [ ]	Provided between all accessible external conductors, including frame ground (if any), and all MDI leads

**0.0.0.7 SCCP**

Item	Feature	Subclause	Status	Support	Value/Comment
SCCP1	SCCP master	104.6	M	Yes [ ]	Source the required pull-up current
SCCP2	SCCP master	104.6.1	M	Yes [ ]	Source a pull-up current in order to drive the bus voltage high and meet the required electrical specifications for SCCP

SCCP3	SCCP communication	104.6.3.1	M	Yes [ ]	Begins with an initialization sequence consisting of a result pulse from the master followed by a presence pulse from the slave. See Figure 104-10
SCCP4	Initialization sequence	104.6.3.1	M	Yes [ ]	Master transmits a reset pulse by pulling its PI voltage low for $t_{RSTL}$ and then releases its PI and goes into receive mode (RX)
SCCP5	Slave presence pulse	104.6.3.1	M	Yes [ ]	Transmitted after detecting rising edge at PD PI and waiting $t_{PDHIGH}$
SCCP6	Master write time slots	104.6.3.2	M	Yes [ ]	Write 1 time slot to transmit logic 1 to slave and write 0 time slot to transmit logic 0 to slave
SCCP7	Write time slot duration	104.6.3.2	M	Yes [ ]	Defined as $t_{SLOT}$ shown in Table 104-7
SCCP8	Write time slot recovery time	104.6.3.2	M	Yes [ ]	Defined as $t_{REC}$ shown in Table 104-7
SCCP9	Write time slot initiation	104.6.3.2	M	Yes [ ]	Initiated by pulling PI port voltage low as shown in Figure 104-11
SCCP10	Write 1 time slot generation	104.6.3.2	M	Yes [ ]	Write by pulling PI port voltage low then release PI port within $t_{LOW1}$
SCCP11	Write 0 time slot generation	104.6.3.2	M	Yes [ ]	Write by pulling PI port voltage low then hold PI port low for $t_{LOW0}$
SCCP12	Read time slot generation	104.6.3.3	M	Yes [ ]	Generated by the master immediately after issuing a function command which requires data from the slave
SCCP13	Read time slot duration	104.6.3.3	M	Yes [ ]	Defined as $t_{SLOT}$ shown in Table 104-7
SCCP14	Read time slot recovery time	104.6.3.3	M	Yes [ ]	Defined as $t_{REC}$ shown in Table 104-7
SCCP15	Read time slot initiation	104.6.3.3	M	Yes [ ]	Initiate by pulling PI port voltage low for $t_{INIT}$ then release the port
SCCP16	Slave transmit	104.6.3.3	M	Yes [ ]	Transmit a 1 or 0 at the slave PI after master initiates read time slot
SCCP17	Slave transmit 1	104.6.3.3	M	Yes [ ]	Leave PI port voltage high
SCCP18	Slave transmit 0	104.6.3.3	M	Yes [ ]	Pull PI port voltage low
SCCP19	Slave transmit 0 duration	104.6.3.3	M	Yes [ ]	While transmitting 0, hold the PI low for $t_{LOW0}$ , then release the PI by the end of the time slot

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SCCP2 0	Read time slot sample	104.6.3.3	M	Yes [ ]	Master releases PI and then samples subsequent voltage within $t_{RDV}$ from the start of the time slot
SCCP2 1	Sum of $T_{INIT}$ , $T_{REC}$ , and master sample time	104.6.3.3	M	Yes [ ]	Less than $t_{RDV}$ for a read time slot
SCCP2 2	Address command	104.6.4.3	M	Yes [ ]	Master must issue an appropriate address command prior to issuing a function command
SCCP2 3	Read address command	104.6.4.3.2	M	Yes [ ]	Only to be used when there is one slave on the bus
SCCP2 4	Function command response	104.6.4.3.3	M	Yes [ ]	Only sent when the 64-bit slave write address exactly matches that sent by the master
SCCP2 5	Write address mismatch	104.6.4.3.3	M	Yes [ ]	Wait for a reset pulse
SCCP2 6	Alarm search command response	104.6.4.3.5	M	Yes [ ]	Only by slaves with a set alarm flag
SCCP2 7	Alarm search cycle	104.6.4.3.5	M	Yes [ ]	Return to Step1 (Initialization) after every alarm search cycle

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