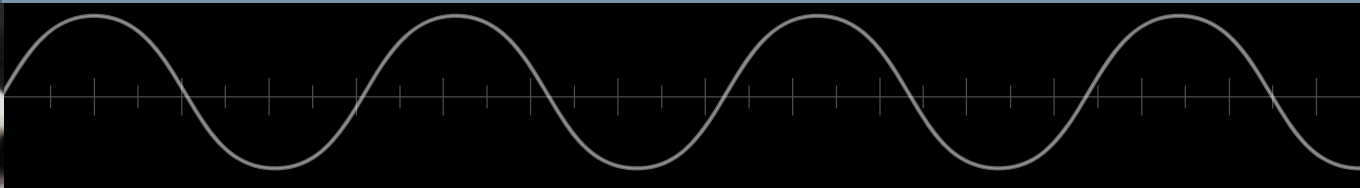# Maintain Power Signature (MPS) for PoDL

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Maintain Power Signature Proposal for PoDL

MPS Presentation Objectives:

- Present motivation for MPS

- Review use cases

- Propose requirements

- Review MPS operation

- Propose baseline text

Why do we need Maintain Power Signature?

- Power should only be applied to PI when a PD is present and ready to accept power.

- A powered PI in the absence of a connected PD may present a hazard.

- Cable breaks may also present a hazard if power is not removed from the PI with minimal delay.

MPS Use Cases

- PSE removes power from PI if PD is abruptly disconnected, e.g. cable break or disconnect without warning.

- PSE removes power if PD latches off after a fault.

- PSE maintains power at PI while PD is in a low power state.

- PSE maintains power at PI while PD is receiving power from an auxiliary source.

PoDL PD Maintain Power Signature (MPS) Scheme Requirements

- Latency should be minimal
  - Less than 400ms

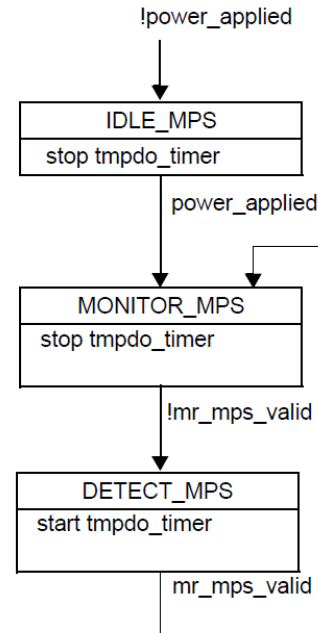- Power consumption should be minimal
  - Less than 10uA average current

MPS Waveform

- MPS is present if I_{PD} is greater than I_{HOLD} for at least T_{MPS}
- PSE shall remove power if MPS is absent for more than T_{MPDO}
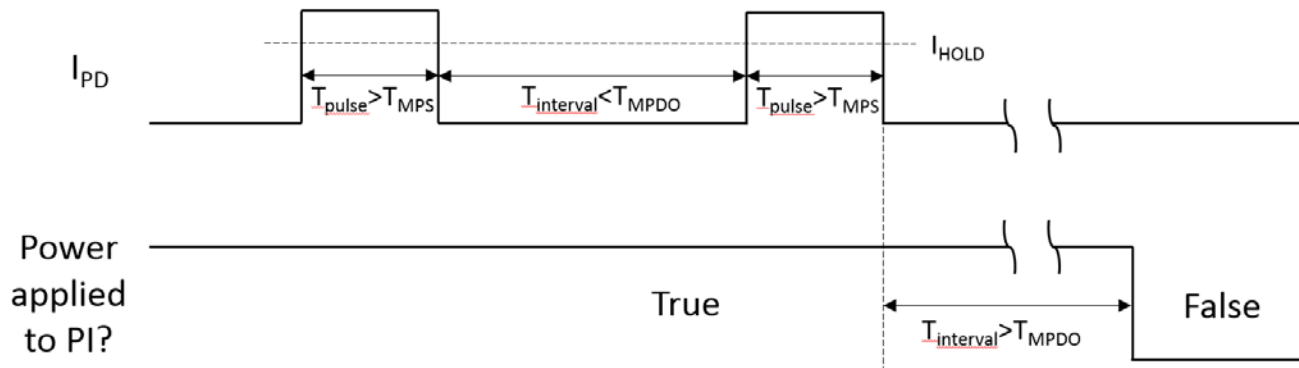
MPS State Diagram

mr_mps_valid if $I_{PD} > I_{HOLD}$ for at least T_{MPS}

Proposed Baseline

200.3.*TBD* PSE MPS requirements

A PSE shall consider the MPS to be present if I_{Port} is greater than or equal to I_{Hold} max for a minimum of T_{MPS}. A PSE shall consider the MPS to be absent if I_{Port} is less than or equal to I_{Hold} min. A PSE may consider the MPS to be either present or absent if I_{Port} is in the range of I_{Hold}.

Power shall be removed from the PI when the MPS has been absent for a duration greater than T_{MPDO}.

The PSE shall not remove power from the port when I_{Port} is greater than or equal to I_{Hold} max continuously for at least T_{MPS} every $T_{MPS} + T_{MPDO}$, as defined in Table 200–TBD. This allows a PD to minimize its power consumption.

Proposed Baseline Text Cont'd

Item	Parameter	Symbol	Unit	Min	Max	Additional information
	PSE Maintain Power Signature Parameters					
1	Maintain Power Signature dropout time limit	T_{MPDO}	s	0.300	0.400	
2	Maintain Power Signature time for validity	T_{MPS}	s		0.001	
3	MPS Current Threshold	I_{Hold}	mA	0.75	1.25	

Table 200-*TBD* – PSE PI Parameters for disconnect-detection function

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Proposed Baseline Text Cont'd

200.4.*TBD* PD Maintain Power Signature

In order to maintain power, the PD shall provide a valid Maintain Power Signature (MPS) at the PI. The MPS shall draw current equal to or above 1.5mA for a minimum duration of 1.5ms measured at the PD PI followed by an optional MPS dropout for no longer than 250ms.

A PD that does not maintain the MPS may have its power removed within the limits of T_{MPDO} as specified in Table 200–*TBD*.

Powered PDs that no longer require power shall remove the current draw of the MPS.

Questions?