# Maintain Power Signature (MPS) for PoDL

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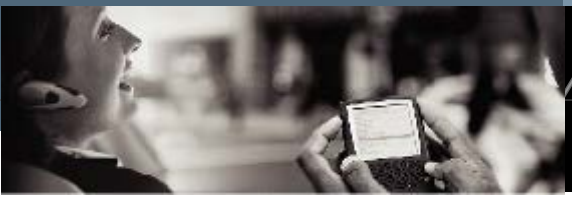
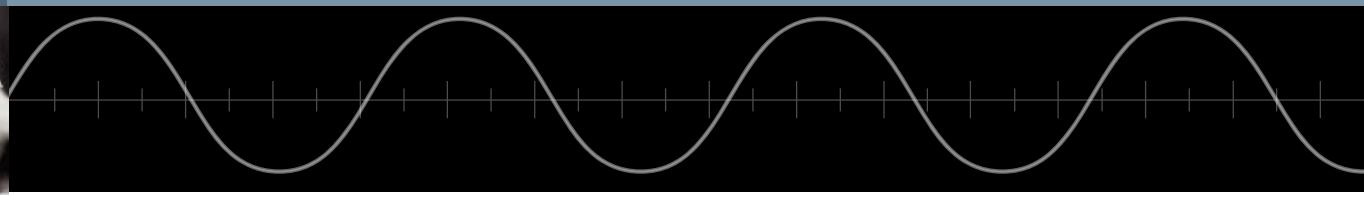




# Maintain Power Signature Proposal for PoDL

**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

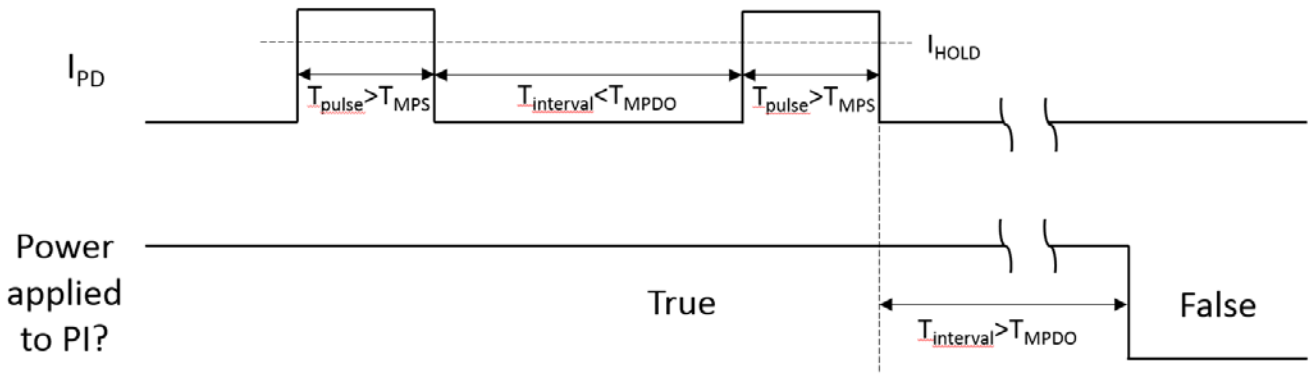
- PSE removes power from PI if PD is abruptly disconnected, e.g. cable break or disconnect without warning.
- PSE removes power if PD latches off after a fault.
- PSE maintains power at PI while PD is in a low power state.
- PSE maintains power at PI while PD is receiving power from an auxiliary source.

# 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

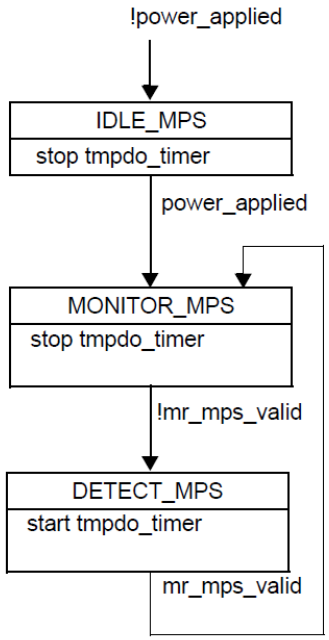
# MPS Waveform

- 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 | TBD | TBD | |
| 2 | Maintain Power Signature time for validity | $T_{MPS}$ | s | TBD | | |
| 3 | MPS Current Threshold | $I_{Hold}$ | mA | TBD | TBD | |

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

# 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 TBD for a minimum duration of TBD measured at the PD PI followed by an optional MPS dropout for no longer than TBDms as measured at the PSE with the worst case cable resistance.

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?