



PSE State Diagram Updates

Heath Stewart, David Stover

Problem Statements

- DC MPS state diagram does not support optional 2P power of some SS PDs
- PSE SISIM state diagrams do not support *optional feature* of port power removal by the PSE in the event of a fault on one pairset.

- 33.2.8 - Power supply output

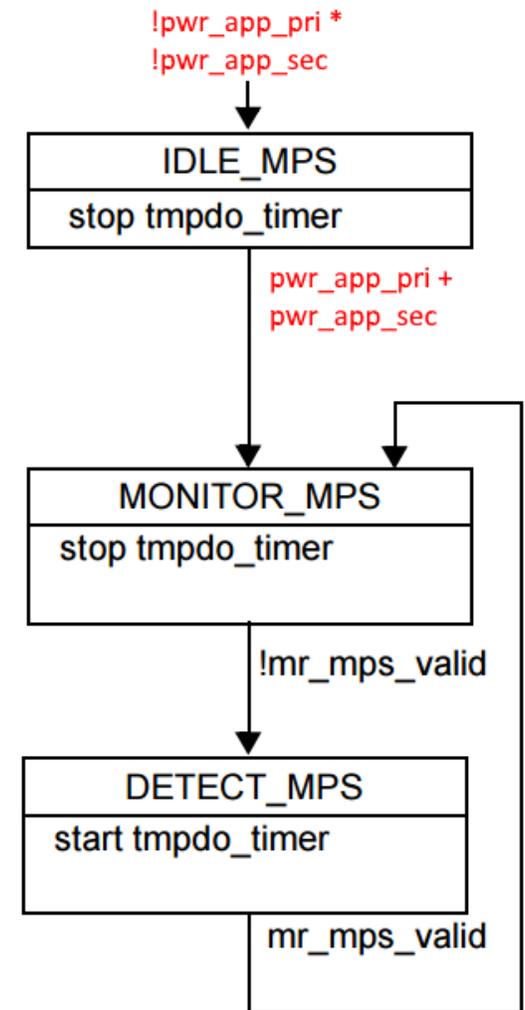
*“When the PSE provides power to the PI, it shall conform with Table 33–17. Table 33–17 values support worst-case operating conditions. These ranges may be narrowed when additional information is known and applied in accordance with this specification. **Power may be removed from both pairsets any time power is removed from one pairset.**”*

DC MPS – Observations

- Existing variable definition of `mr_mps_valid` already covers all possible cases for MPS present/absent as defined in PSE MPS section
 - 33.2.5.9 – Type 3 and Type 4 Variables
 - `mr_mps_valid`
 - The PSE monitors the Maintain Power Signature (MPS, see 33.2.10.1). This variable indicates the presence or absence of a valid MPS.
 - Values:
 - FALSE: MPS is absent.
 - TRUE: MPS is present.
- Any attempt to make MPS behavior more specific would...
 - Create redundant ‘shall’ language between DC MPS text and PSE SD
 - Require MPS behavior to be coherently maintained in multiple locations

DC MPS – Proposed Solution

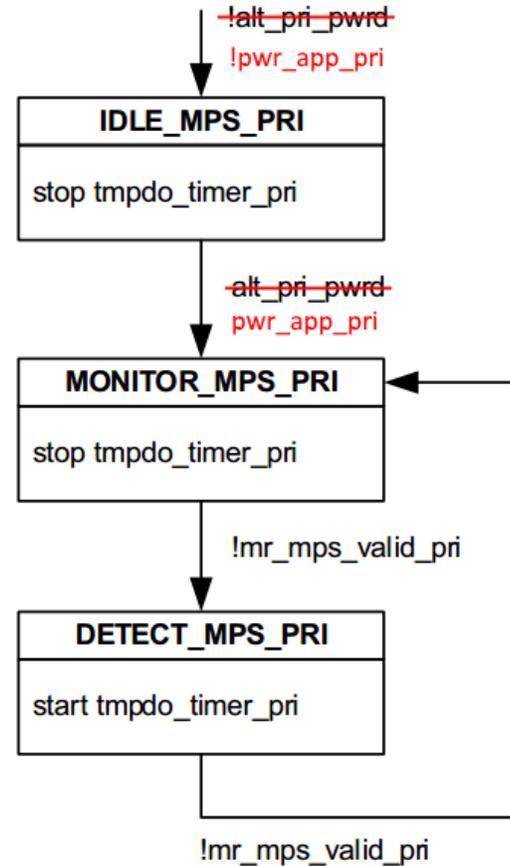
- No changes required to observe PSE MPS rules for dual-signature PDs as per 33.2.10.1.2
 - `mr_mps_valid`
- Request “power_applied” transition logic be replaced to allow optional feature of conditional 2P power to some SS PDs
- Request this figure be labelled for powering of single-signature PDs by Type 3 and 4 PSEs



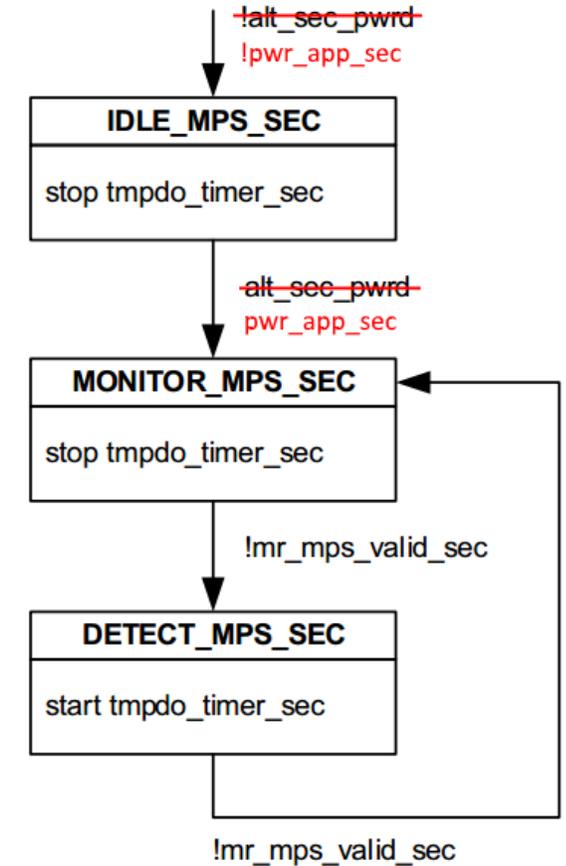
Type 3 and 4 PSE single-signature
MPS monitor state diagram

DC MPS – Proposed Solution, cont'd

- No changes required to observe PSE MPS rules for dual-signature PDs as per 33.2.10.1.2
 - mr_mps_valid_pri
 - mr_mps_valid_sec
- Request existing Type 3 and 4 MPS state diagrams be relabeled as dual-signature (SISM) specific
- Request “alt_pwr” transition logic be changed to “pwr_app”
 - Behavior consistent with Type 1, Type 2 “power_applied” transition logic

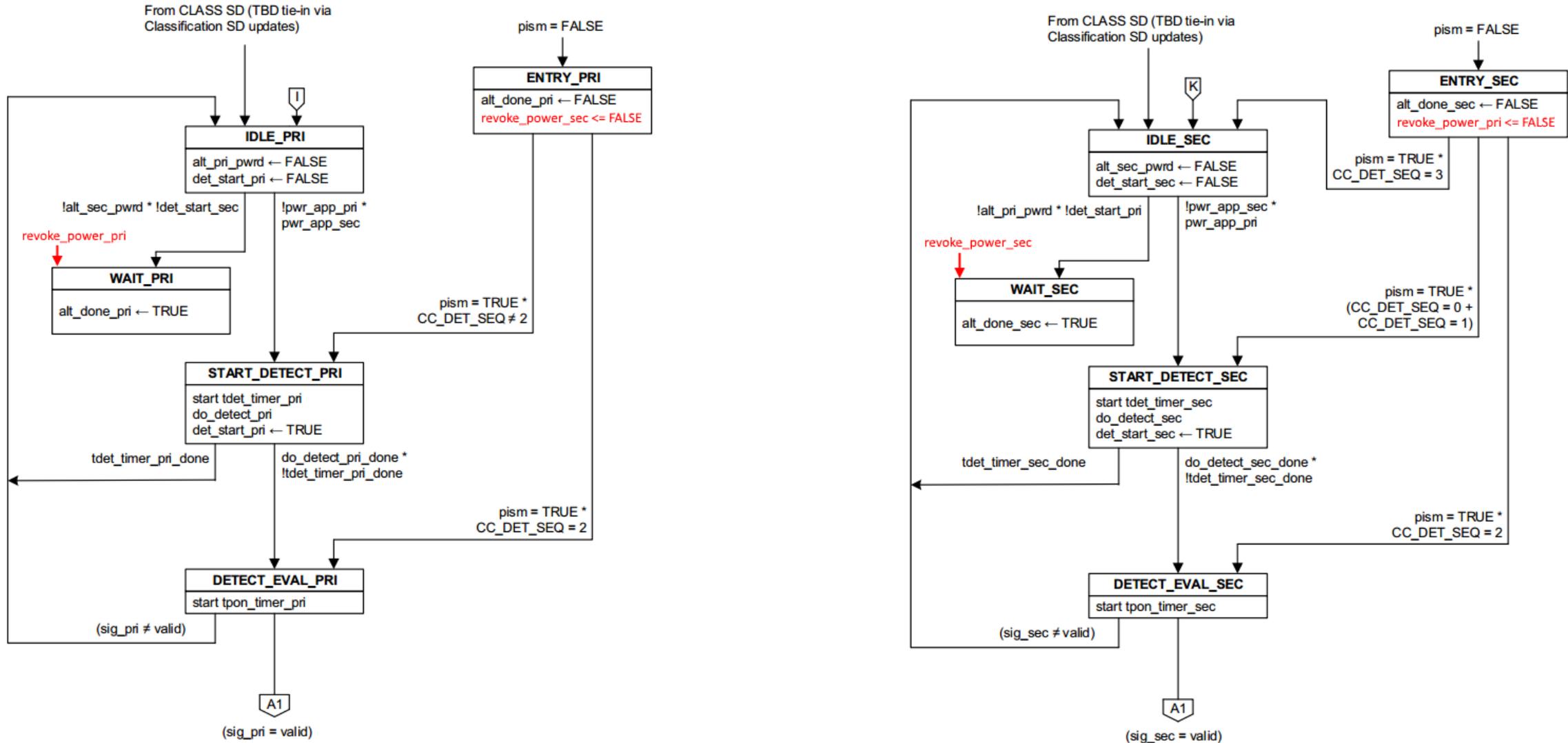


Type 3 and 4 PSE dual-signature MPS monitor state diagram on the Primary Alternative

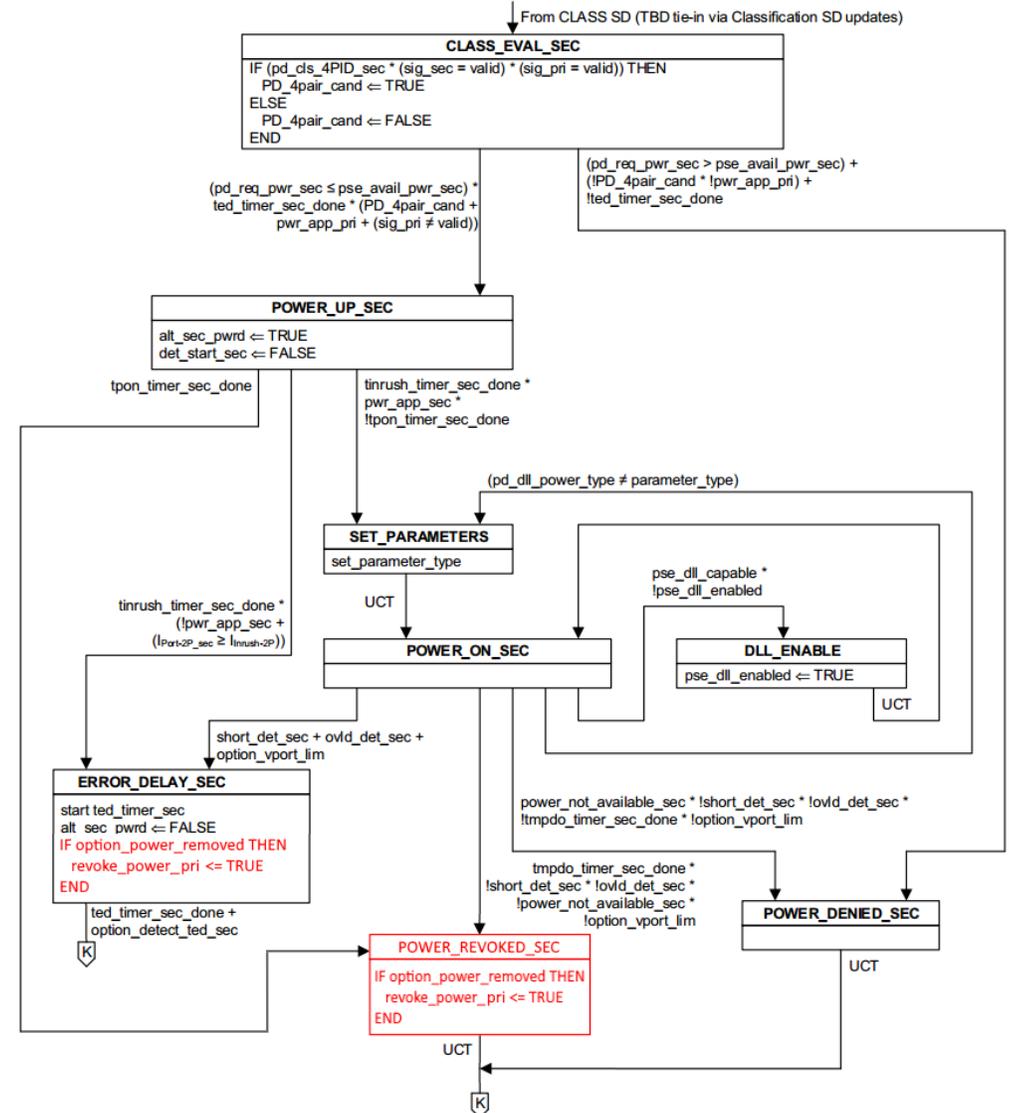
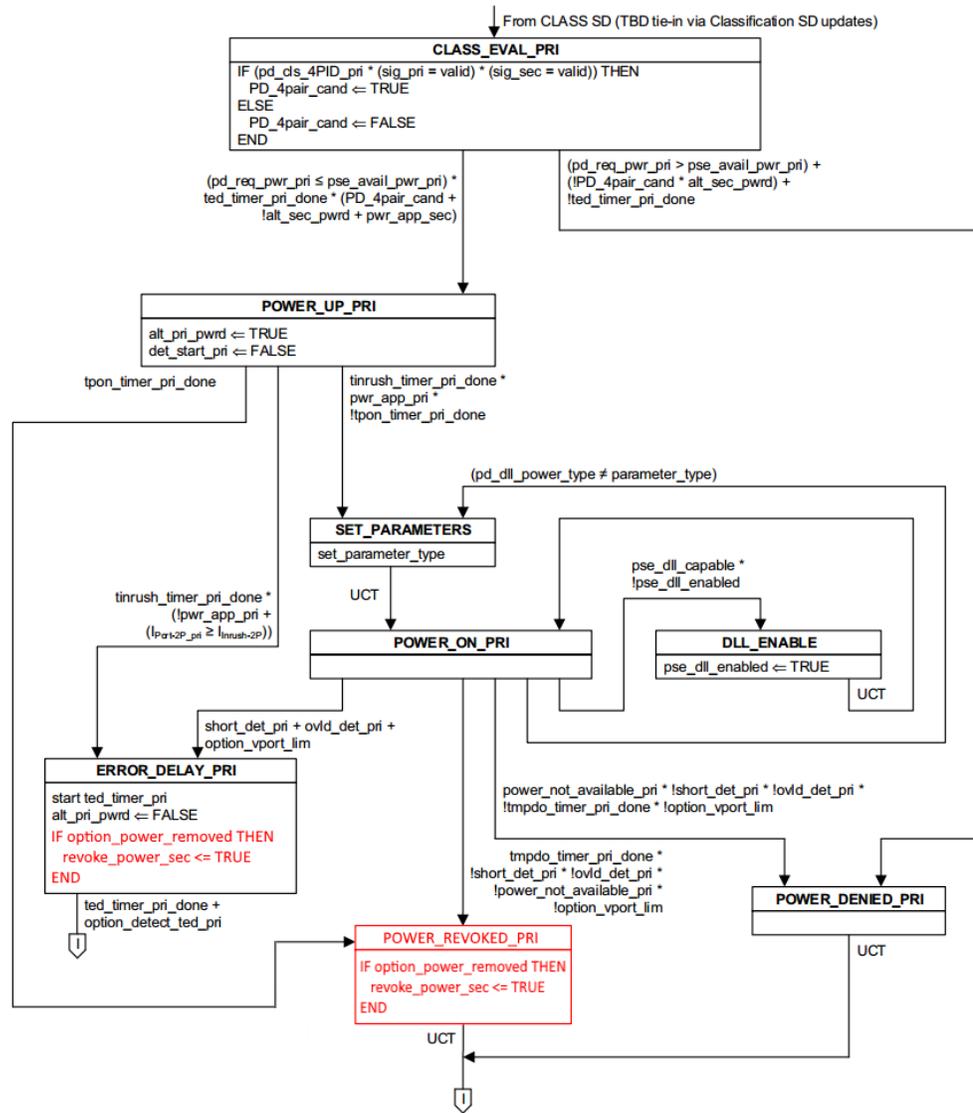


Type 3 and 4 PSE dual-signature MPS monitor state diagram on the Secondary Alternative

Optional Power Removal – Proposed Solution



Optional Power Removal – Proposed Solution, cont'd



Optional Power Removal – Proposed Solution, cont'd

- 33.2.5.9 – Type 3 and Type 4 Variables

- option_power_removed

- This variable indicates if the PSE will to remove power from the port in the event that power is removed on any pairset.

- Values:

- FALSE: Do not remove power from the port when power is removed from any pairset.

- TRUE: Remove power from the port when power is removed from any pairset.

- revoke_power_pri

- This variable signals the primary alternative state machine to revoke power from the primary pairset.

- revoke_power_sec

- This variable signals the secondary alternative state machine to revoke power from the secondary pairset.