

PSE State Diagram Update Summary

Jean Picard, Texas Instruments

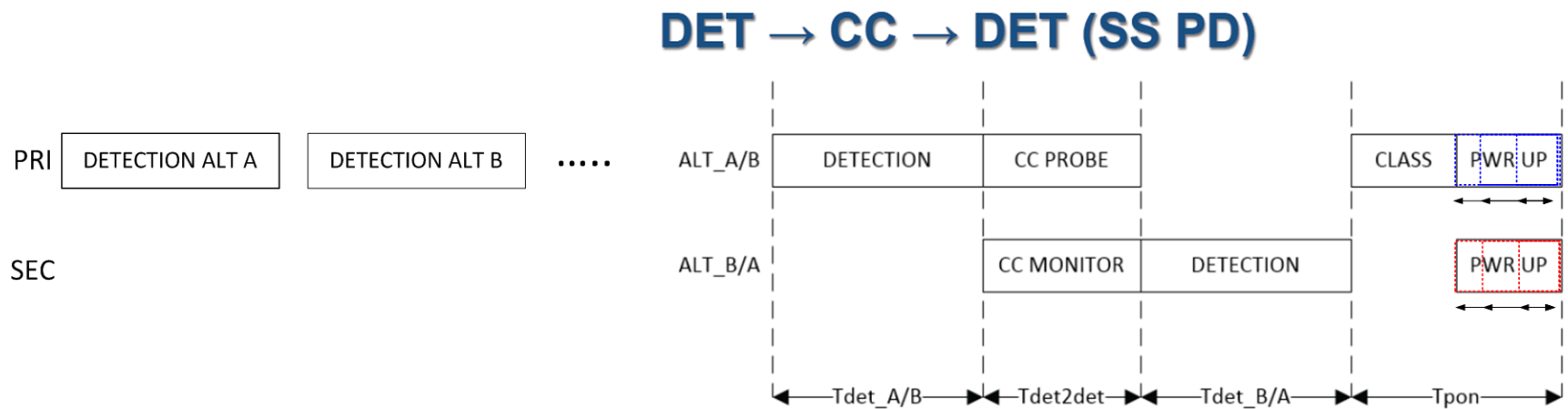
IEEE 802.3bt Task Force

March 2016

Goals

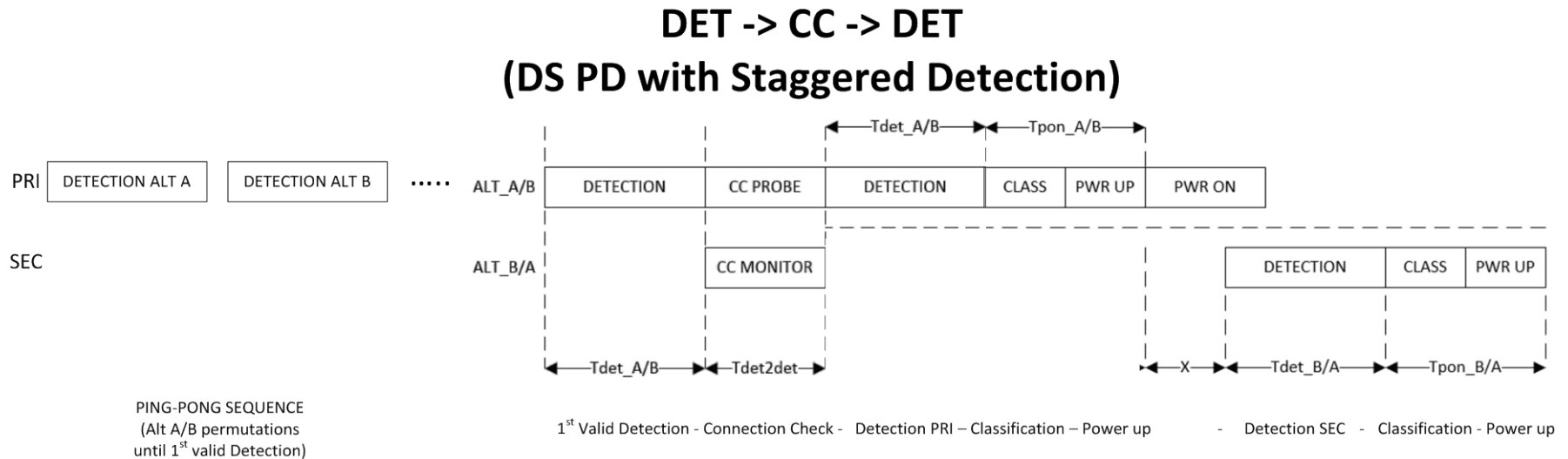
- Suggest changes to PSE Main State Diagram to cover the following topics:
 - CC and Detection sequencing:
 - CC_DET_SEQ = 1 scenario
 - Ping-Pong sequence
 - DS PD 4PID
 - Faults
 - DC disconnect

SS PD with CC_DET_SEQ = 1



PING-PONG SEQUENCE
(Alt A/B permutations
until 1st valid Detection)

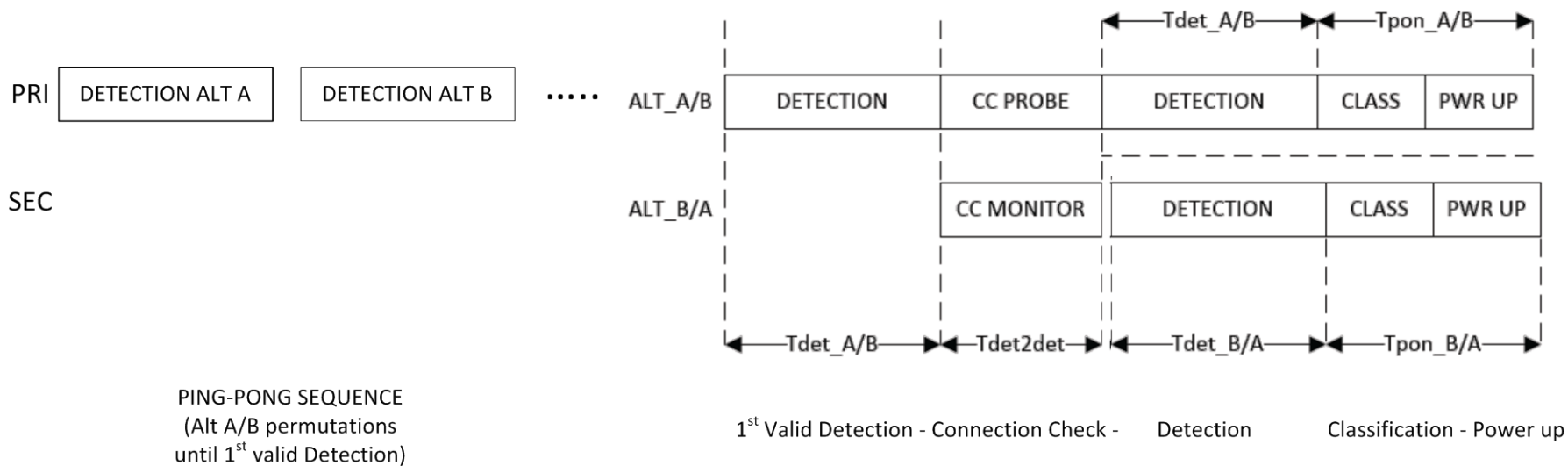
DS PD with CC_DET_SEQ = 1 and Staggered Detection



Staggered detection is used to determine if the PD is 4P candidate.
It applies if Class_4PID_mult_events_sec is FALSE, meaning that the “3 class events” method is used.

DS PD with CC_DET_SEQ = 1 and Parallel Detection

DET -> CC -> DET (DS PD with Parallel Detection)

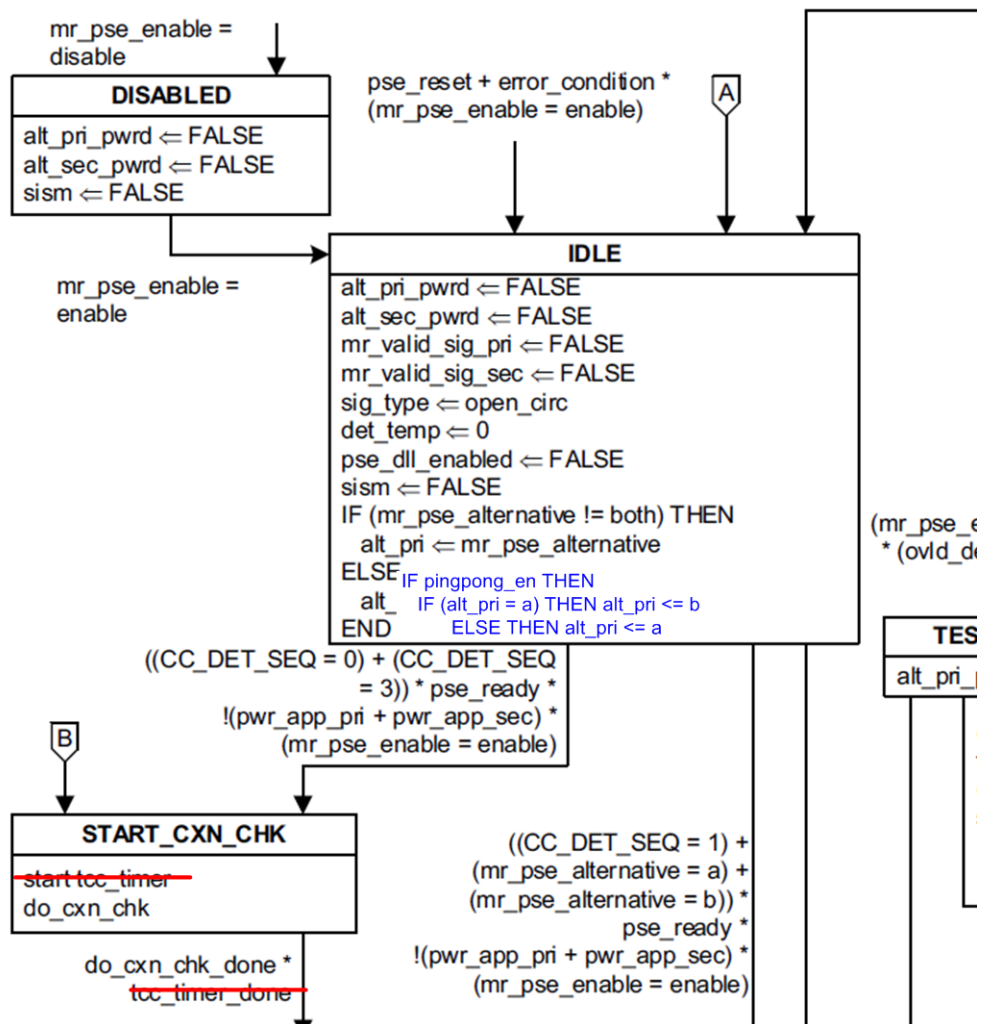


Parallel detection with the 3-class events method is used to determine if the PD is 4P candidate. It applies if Class_4PID_mult_events_sec is TRUE.

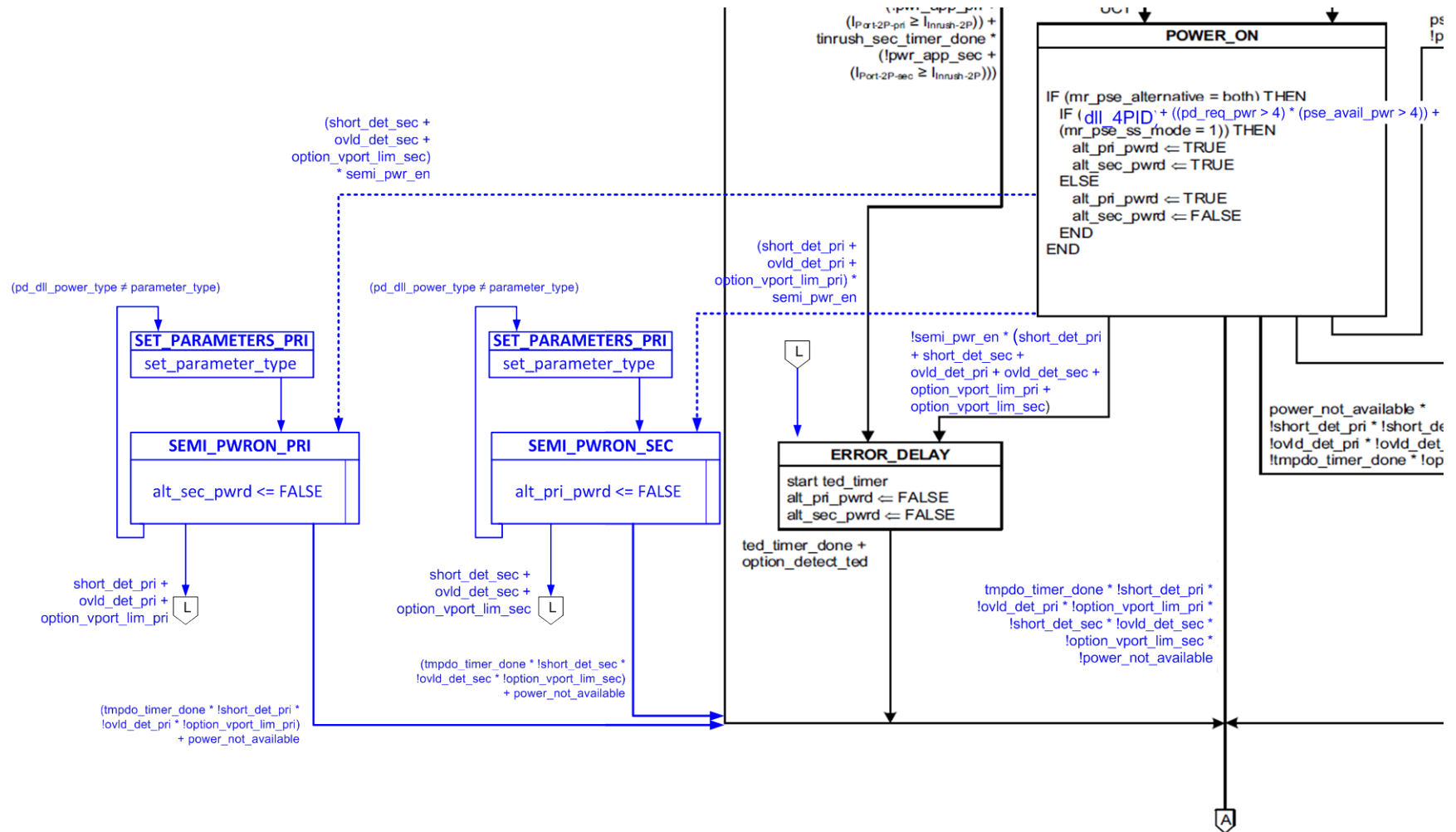
Quick Review of the Update

- Ping-Pong sequence: Initially, as long as the detection is NOT valid, the detection is continuously repeated while alternating between Alt A and Alt B.
- Connection check timer is removed.
- Staggered detection if DS PD: PD_4pair_cand_xx can also be set if detection is valid while the other alternate is already powered.
- If there is overcurrent fault on one alternate, a “semi power on” state is allowed. This state ends when the other alternate also has a fault, is disconnected and/or is turned off.
- DC disconnect for SS PD. Both methods are described:
 - Works with a single tmpdo_timer (no “pri” or “sec”), simplifying the main SD.
 - Sum of currents of both pairsets
 - Pairset with the highest current
 - Allows the PSE to periodically re-determine which channel should be monitored.
 - Also covers the case where the PSE drives over 2P only.
 - Uses “pwr_app_pri/sec”, consistent with Type 1 and 2 SD definition

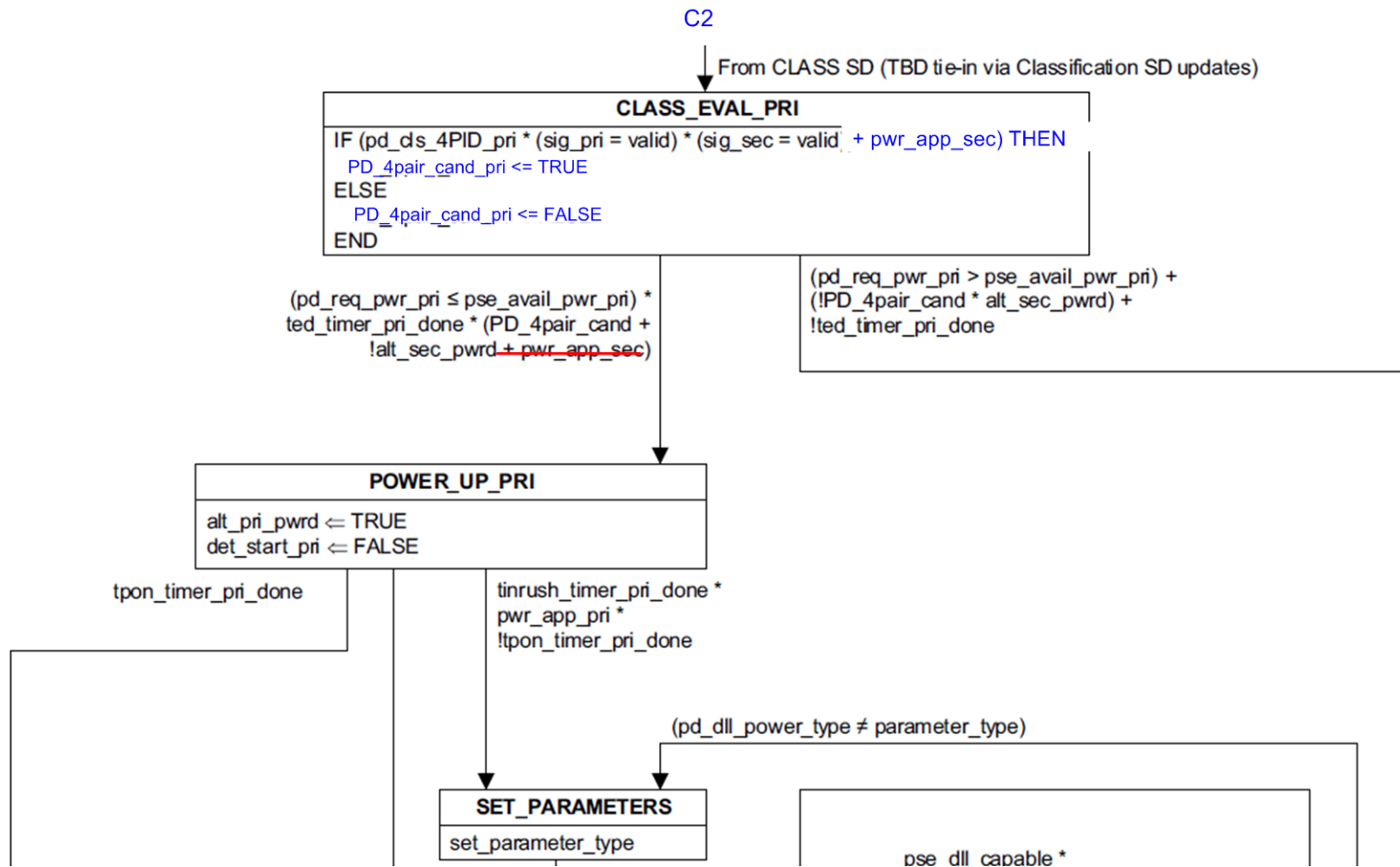
From SD Page 1 – PingPong



From SD Page 3 – Faults



From SD Page 5 – DS PD and 4PID



MPS SD – for SS PD

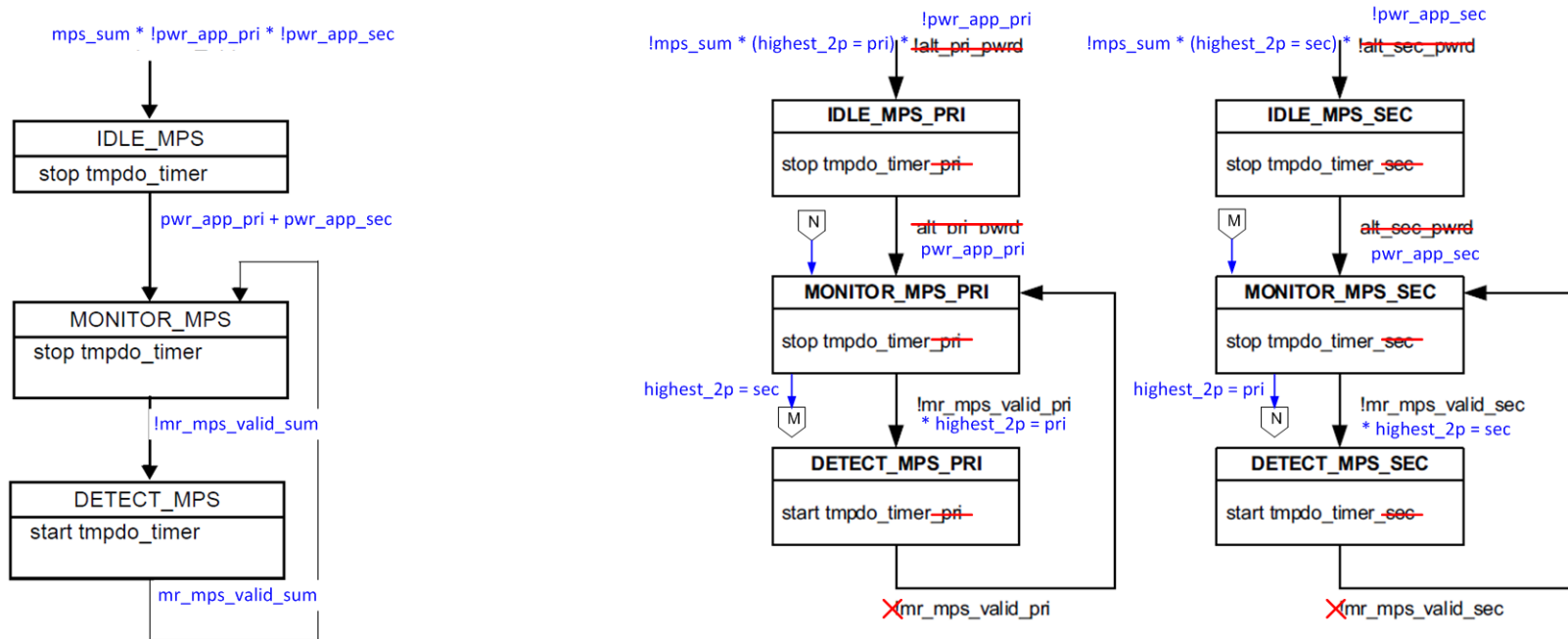
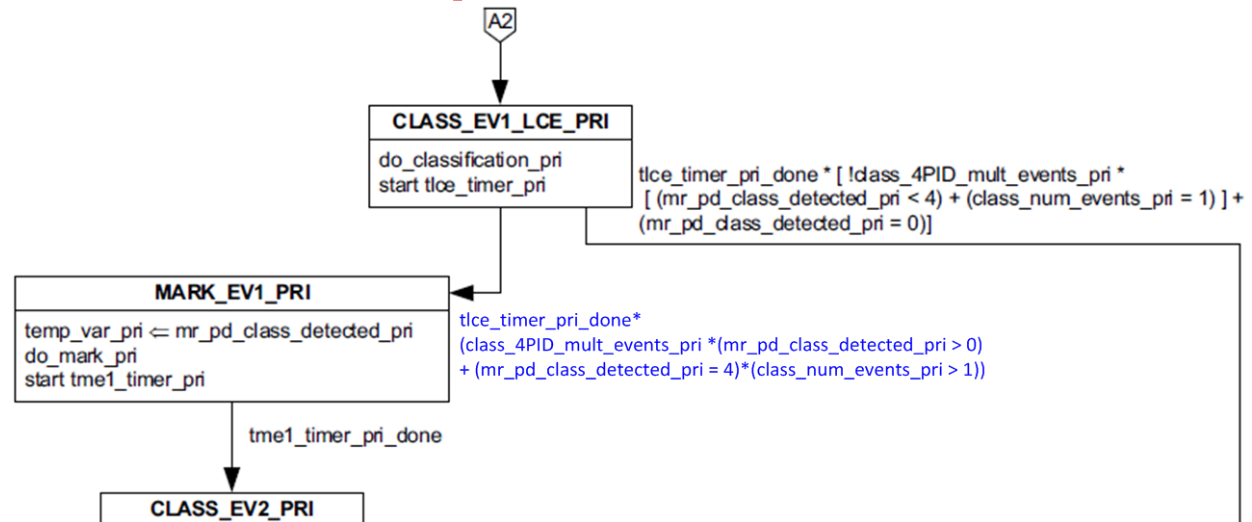


Figure 33-22—Type 3 and Type 4 PSE MPS monitor state diagram for SS PD

Note: the Draft1.6 existing MPS SD would apply only to DS PD

Class SD for DS PD - Minor Updates/Corrections

Primary



Secondary

