

**[Darshan\\_04\\_0917.pdf](#) (PSE state machine Part A- Using CLASS\_PROBE in Figure 145-15/16)  
Comment (i-198, i-269, i-406)**

Some PSE architectures are generating sequences of detection + classification events and waiting for the host to decide when to power on the port. This requires the class probe functionality and exit to IDLE in the classification state machines (for single-signature and dual-signature). Single-signature has global pse\_reset input to IDLE so in this case, PSE can go to IDLE at any time. It is not the case in dual-signature.

As a result, we need to:

- (1) Add CLASS\_PROBE\_PRI/SEC functionality for primary and secondary.
- (2) Add global exit to IDLE\_PRI/SEC by using pse\_reset\_pri/sec by changing the input to IDLE\_PRI to  $\text{sism}^*(\text{iclass\_lim\_det\_pri} + \text{pse\_reset\_pri})$  it will do two things: pse\_reset\_pri and multi-true issue with IDLE\_PRI and ENTRY\_PRI. To implement same changes for secondary.

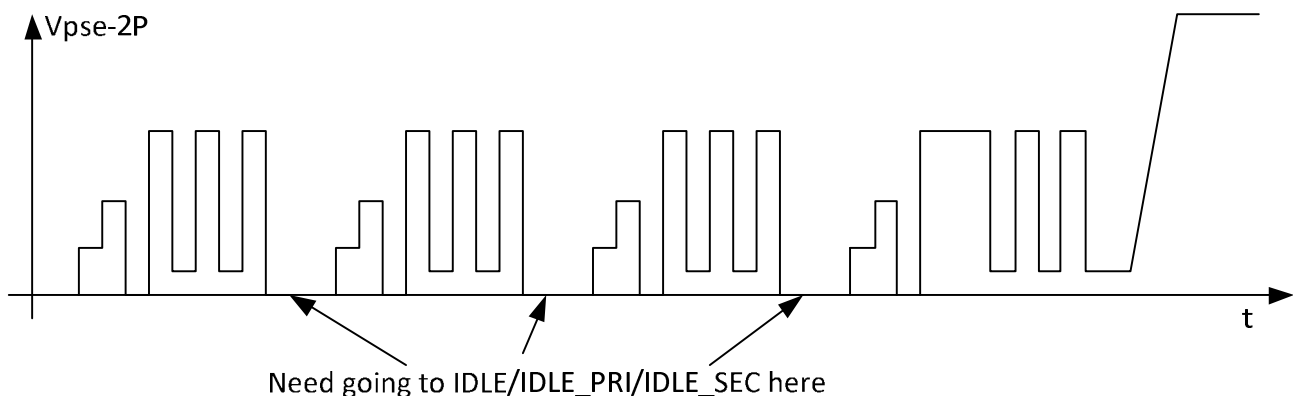
*Notes: There are additional two issues that will be addressed separately:*

- a) Currently, in the state machine, finding the class code by issuing 3 class events and finding 4PID done by separate process that do the same process and with the same reliability and confidence. This redundancy which causes using twice the long class event timer. This will be addressed in [darshan\\_14\\_0917.pdf](#).*
- b) There is an issue that causes the state machine to be stuck in ENTRY\_SEC in case primary detection has failed or dtet\_timer\_pri\_done.*

*In addition, in the transition from IDLE\_SEC to START\_DETECT\_SEC when pwr\_app\_pri=0 we get stuck in IDLE\_SEC if in (CC\_DET\_SEC=3) and det\_star\_pri=0 due to invalid\_sig once or didn't start yet.*

*This will also prevent doing cycles of detection + classification.*

*See proposed solutions in [darshan\\_13\\_0917.pdf](#).*



## Baseline starts here

### ***Proposed Remedy***

#### **1. Make the following changes to the `pse_reset` variable definition:**

`pse_reset`

Controls the resetting of the PSE state diagram (Figure 145-13). Condition that is TRUE until such time as the power supply for the device that contains the PSE overall state diagrams has reached the operating region. It is also TRUE when implementation-specific reasons require reset of PSE functionality.

Values:

FALSE: Do not reset the PSE state diagram.

TRUE: Reset the PSE state diagram.

#### **2. Add the following variables to 145.2.5.4**

`pse_reset_pri`

Controls the resetting of the PSE state diagram on Alternative A (Figure 145-15). Condition that is TRUE until such time as the power supply for the device that contains the PSE overall state diagrams has reached the operating region. It is also TRUE when implementation-specific reasons require reset of PSE Alternative A functionality.

Values:

FALSE: Do not reset the PSE state diagram.

TRUE: Reset the PSE state diagram.

`pse_reset_sec`

Controls the resetting of the PSE state diagram on Alternative B (Figure 145-16). Condition that is TRUE until such time as the power supply for the device that contains the PSE overall state diagrams has reached the operating region. It is also TRUE when implementation-specific reasons require reset of PSE Alternative B functionality.

Values:

FALSE: Do not reset the PSE state diagram.

TRUE: Reset the PSE state diagram.

#### **`option_class_probe_sec`**

This variable indicates if the PSE should determine the PD requested Class when `pse_avail_pwr_sec` is less than 4. When set to TRUE, the PSE will issue 3 class events to determine the PD requested Class, perform a classification reset by applying VReset for at least TReset to the PI (see Table 145– 14), followed by a normal classification procedure.

Values:

FALSE: The PSE will not probe for the PD requested Class.

TRUE: The PSE probes for the PD requested Class.

#### **`option_class_probe_pri`**

This variable indicates if the PSE should determine the PD requested Class when `pse_avail_pwr_pri` is less than 4. When set to TRUE, the PSE will issue 3 class events to determine the PD requested Class, perform a classification reset by applying VReset for at least TReset to the PI (see Table 145– 14), followed by a normal classification procedure.

Values:

FALSE: The PSE will not probe for the PD requested Class.

TRUE: The PSE probes for the PD requested Class.

#### **3. Add the following functions to 145.2.5.6**

`do_class_probe_pri`

This function discovers the dual\_signature PD requested Class by producing a number of class events on the primary alternative. The class events produced are limited to CLASS\_EV1\_LCE\_PRI to MARK\_EV3\_PRI. The `tlce_timer_pri` in CLASS\_EV1\_LCE\_PRI may be replaced with the `tlce2_timer_pri` to allow abbreviated class timing duration. This function returns the following variables:

`pd_req_pwr_pri`: This variable contains the dual-signature PD requested Class per Table 145-25.

Values:

1: Class 1

2: Class 2

3: Class 3

4: Class 4

5: Class 5

`do_class_probe_sec`

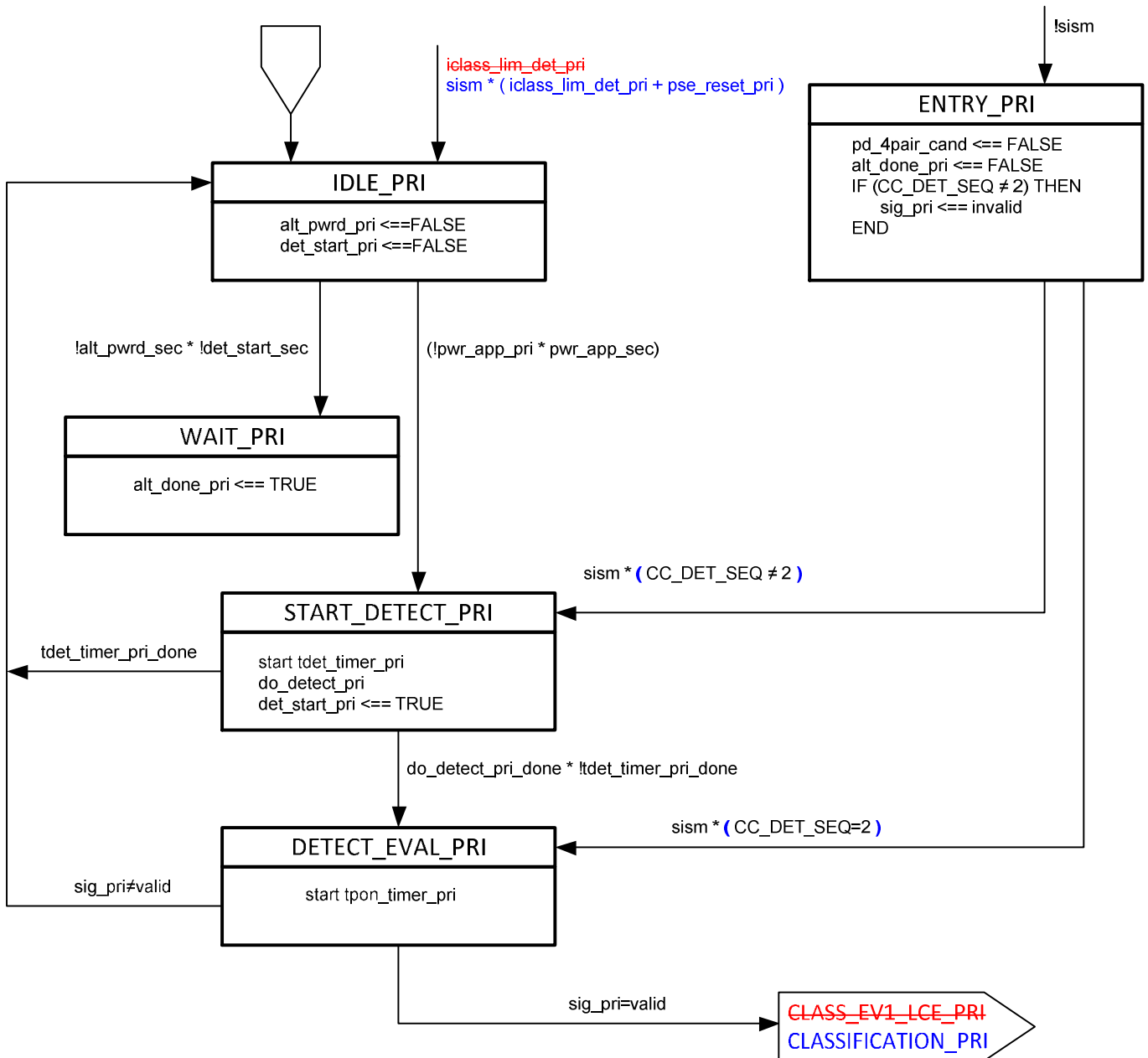


This function discovers the dual\_signature PD requested Class by producing a number of class events on the secondary alternative. The class events produced are limited to CLASS\_EV1\_LCE\_SEC to MARK\_EV3\_SEC. The tlc2\_timer\_sec in CLASS\_EV1\_LCE\_SEC may be replaced with the tlc2\_timer\_sec to allow abbreviated class timing duration. This function returns the following variables:  
 pd\_req\_pwr\_sec: This variable contains the dual-signature PD requested Class per Table 145-25.

Values:

- 1: Class 1
- 2: Class 2
- 3: Class 3
- 4: Class 4
- 5: Class 5

**4. Make the following changes to the state machine in page 132**



5. Make the following changes to Figure 145-15 page 133

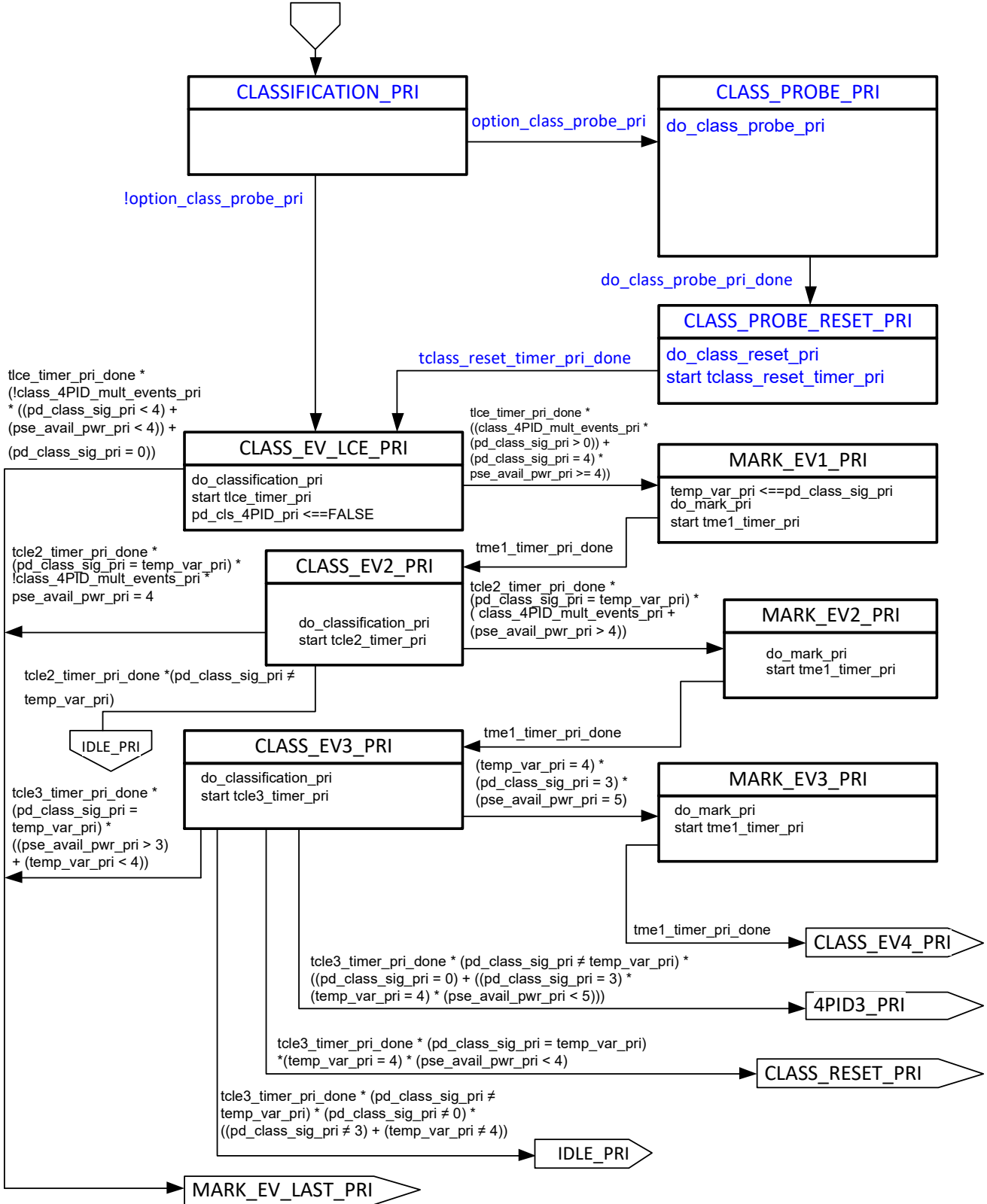
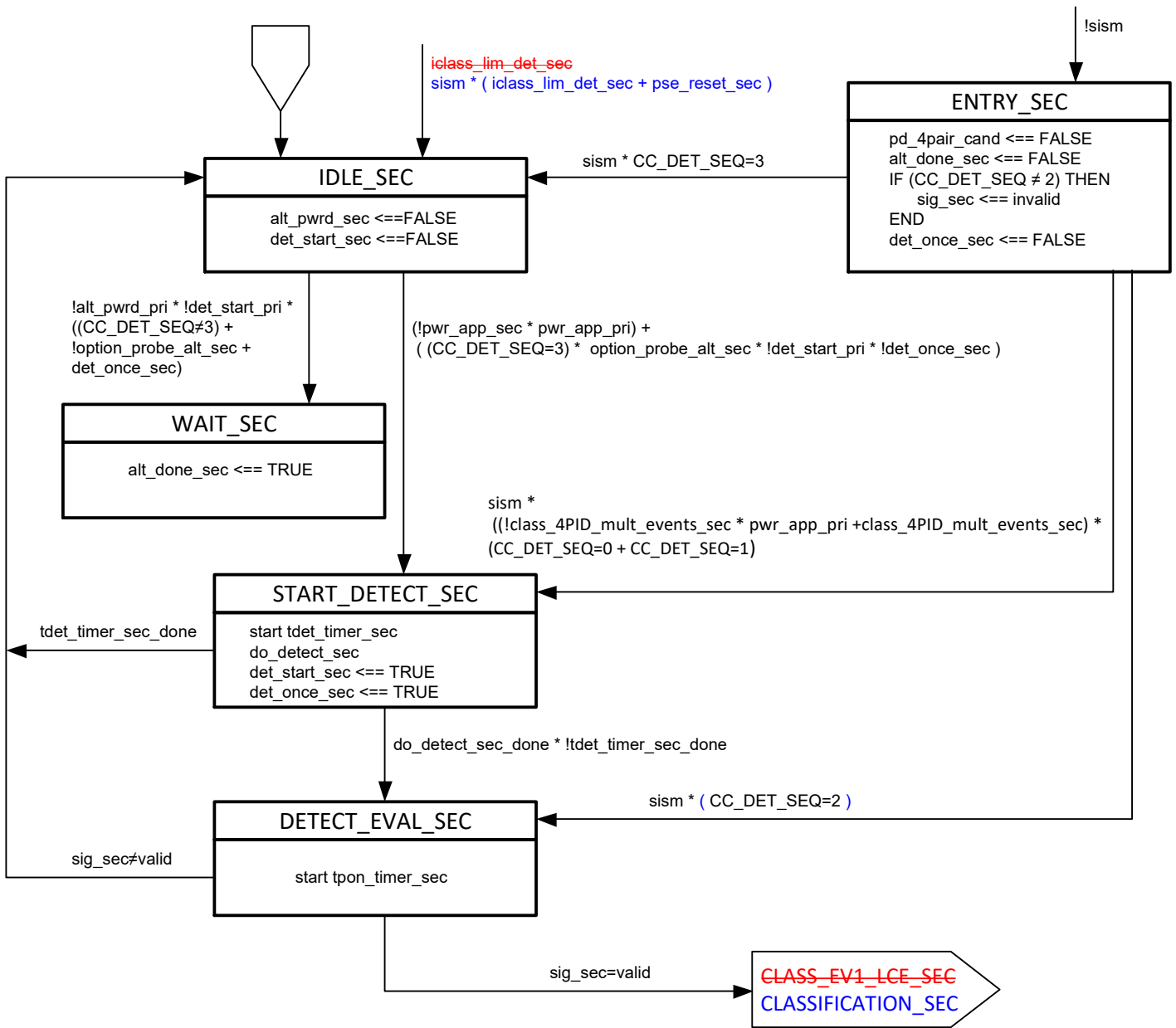


Figure 145-15—Primary Alternative dual-signature semi-independent PSE state diagram (continued)



6. Make the following changes to the state machine in page 136



7. Make the following changes to Figure 145-15 pages 137

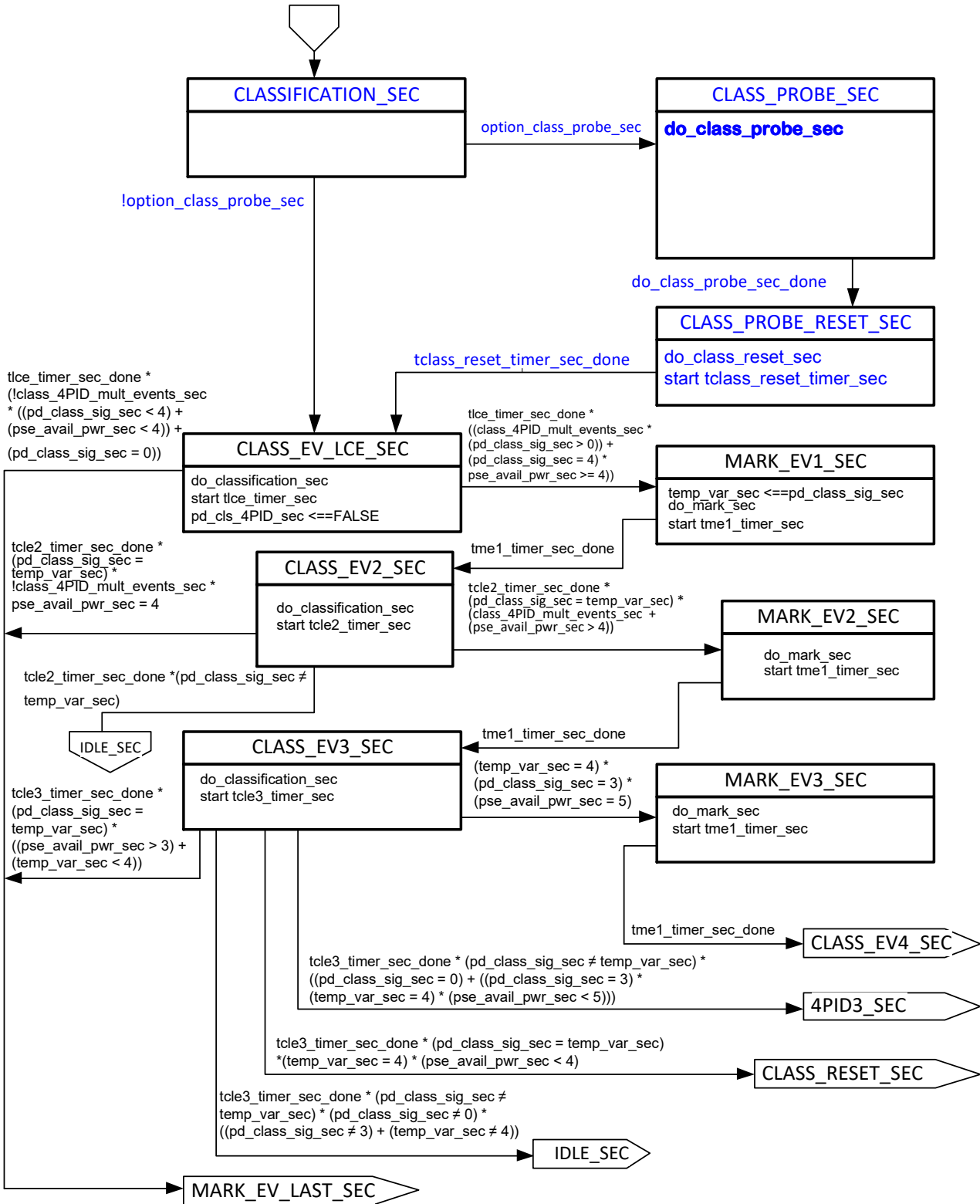


Figure 145-15—Primary Alternative dual-signature semi-independent PSE state diagram (continued)

End of Baseline

