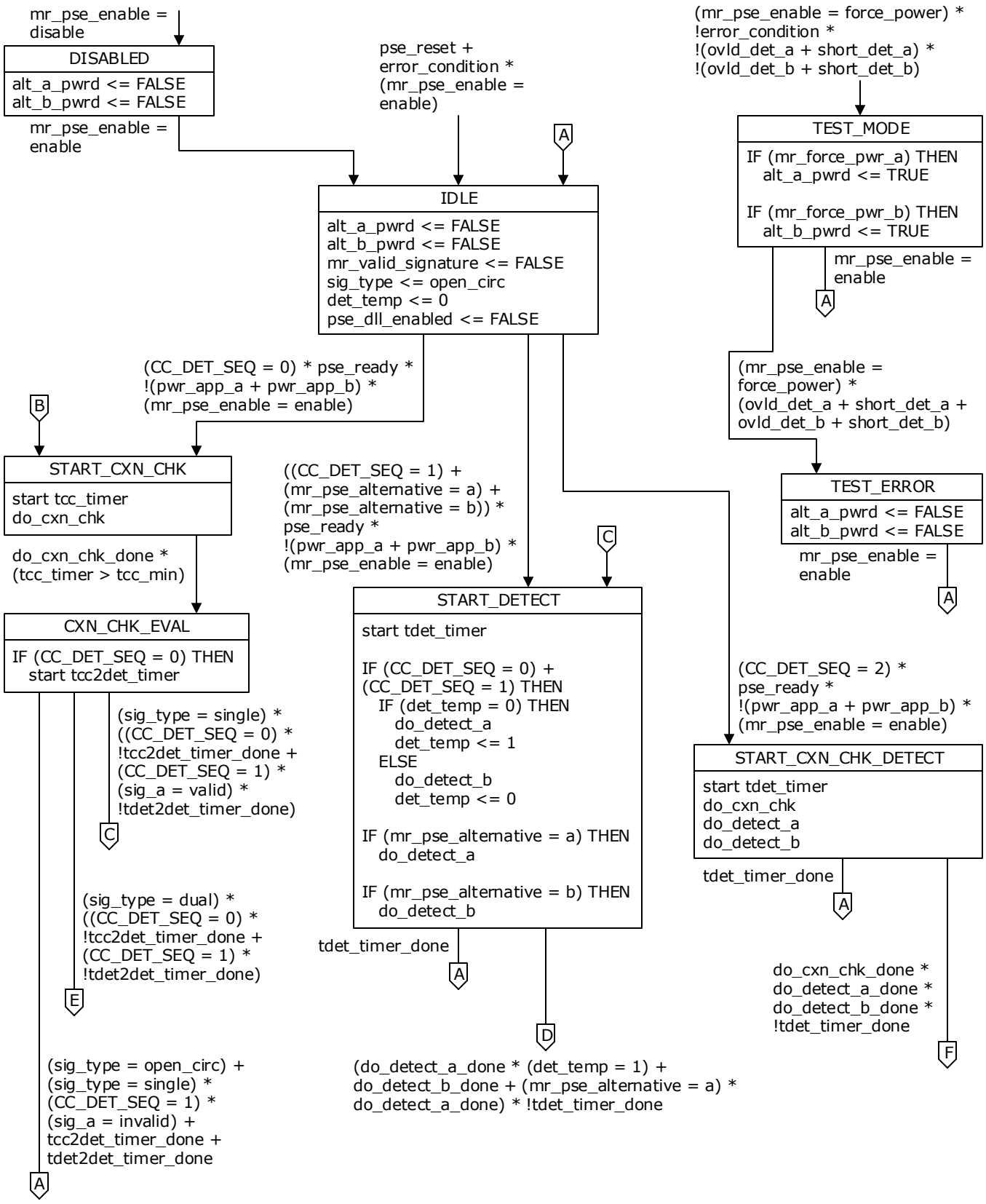
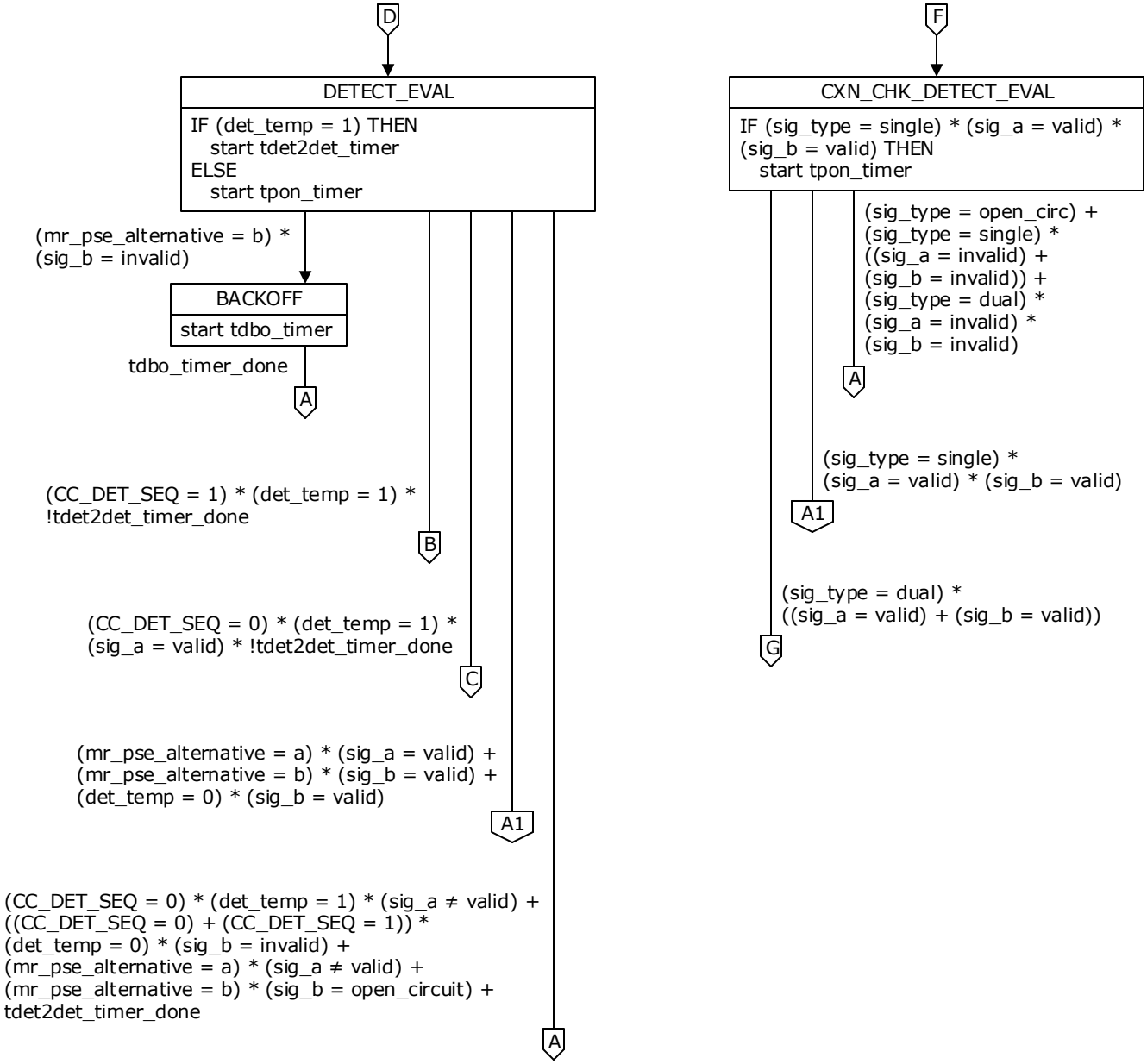
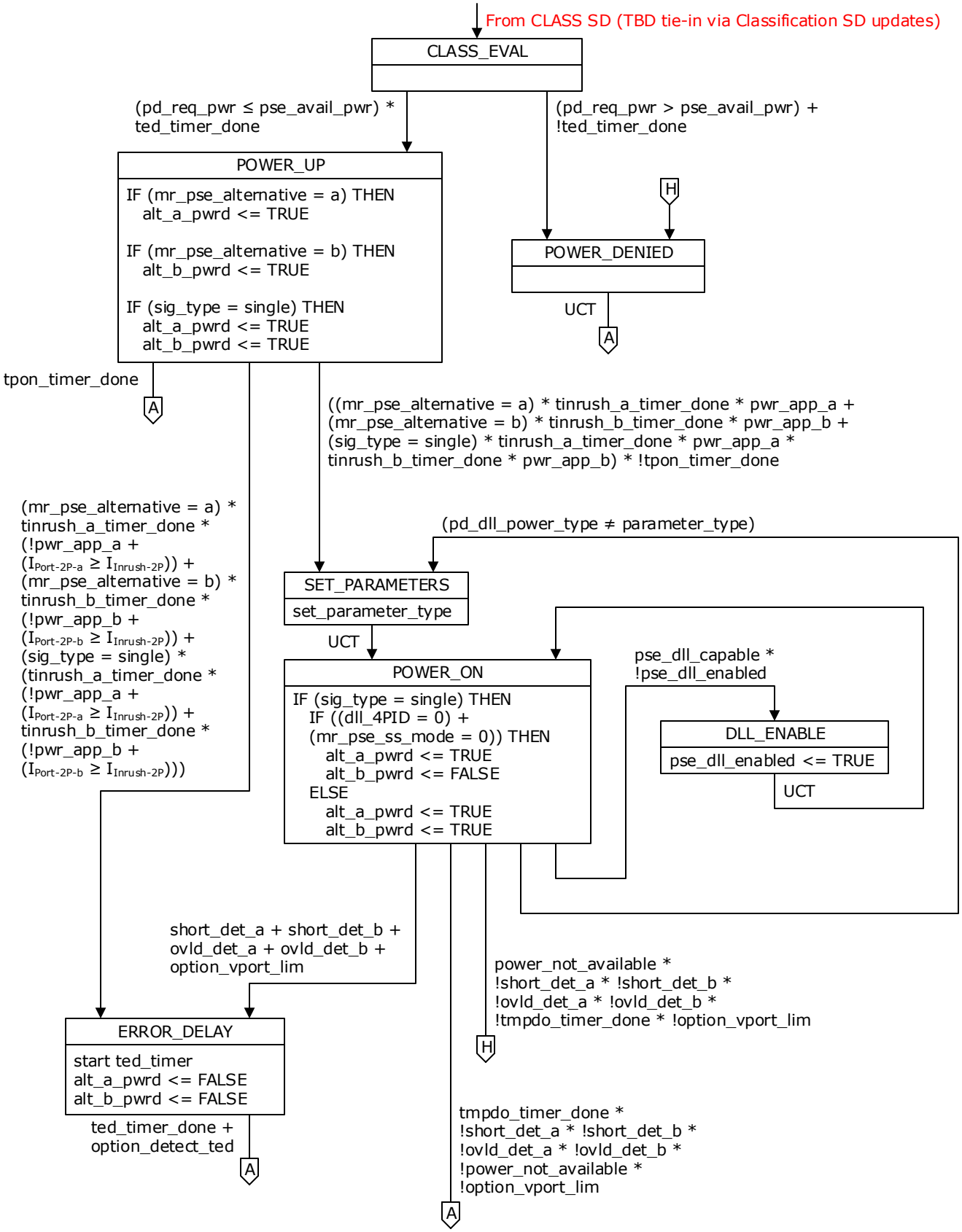
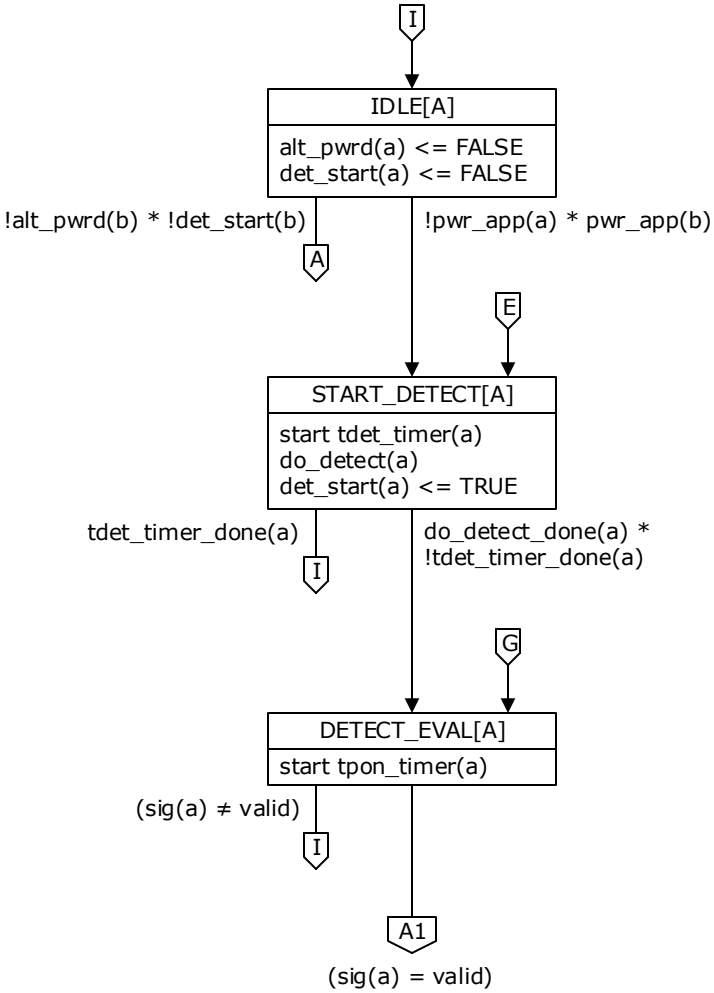
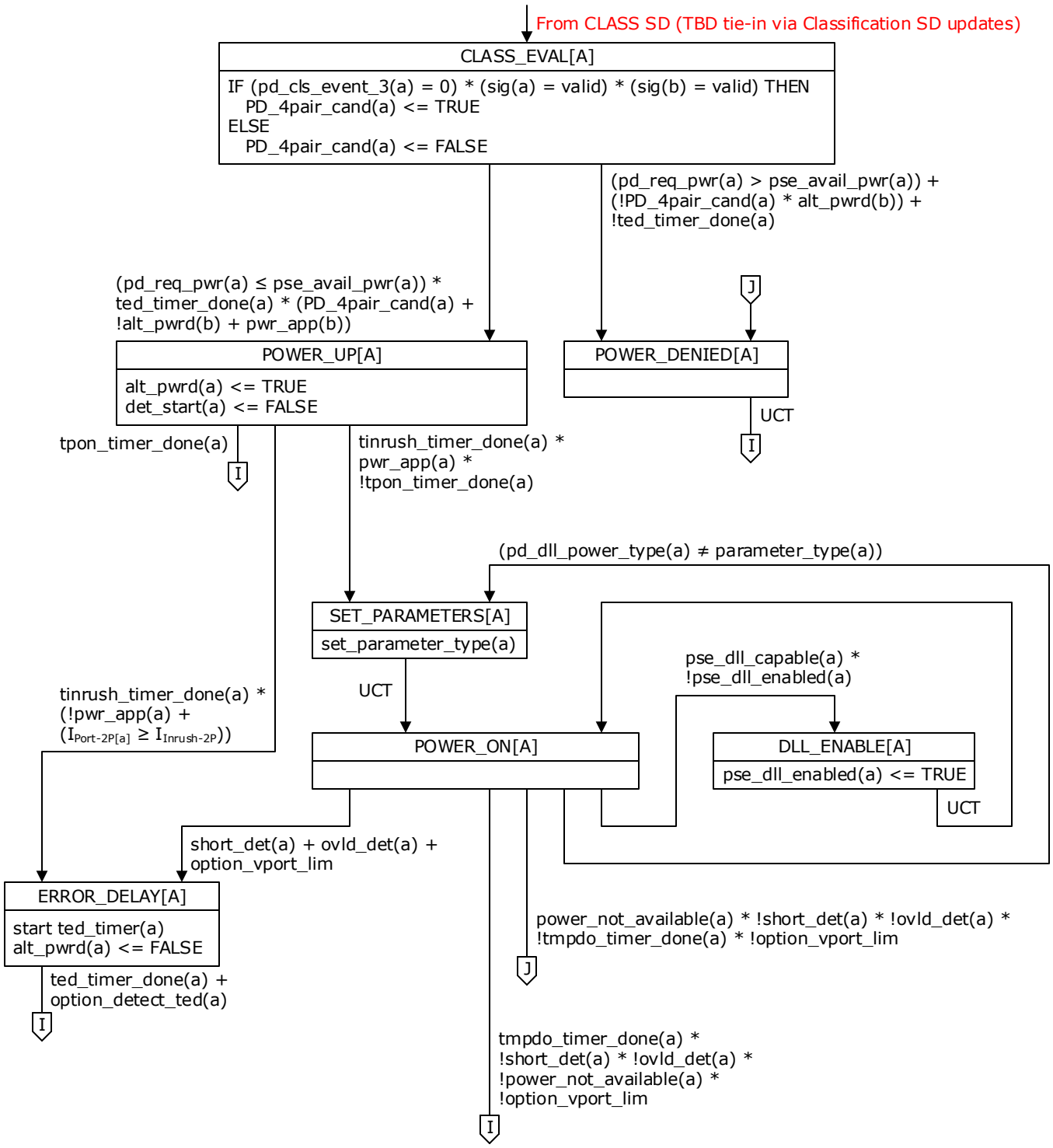
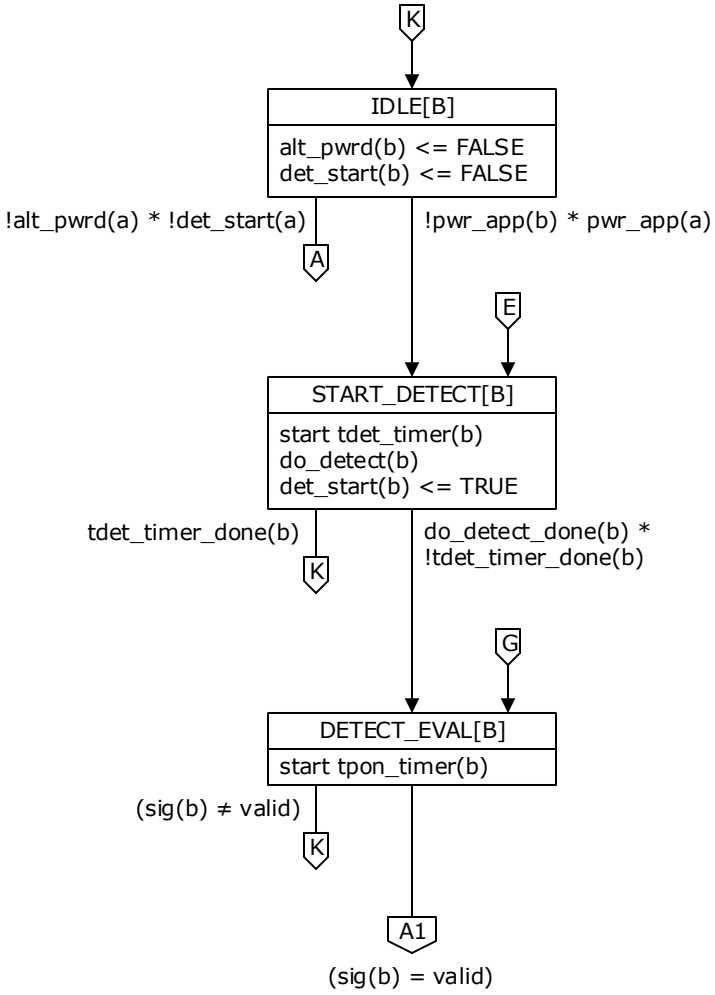

mr_pse_enable = disable
DISABLED
alt_a_pwrd <= FALSE
alt_b_pwrd <= FALSE
mr_pse_enable = enable
pse_reset + error_condition * (mr_pse_enable = enable)
A
IDLE
alt_a_pwrd <= FALSE
alt_b_pwrd <= FALSE
mr_valid_signature <= FALSE
sig_type <= open_circ
det_temp <= 0
pse_dll_enabled <= FALSE
(mr_pse_enable = force_power) * !error_condition * !(ovld_det_a + short_det_a) * !(ovld_det_b + short_det_b)
TEST_MODE
IF (mr_force_pwr_a) THEN
alt_a_pwrd <= TRUE
IF (mr_force_pwr_b) THEN
alt_b_pwrd <= TRUE
mr_pse_enable = enable
A
(CC_DET_SEQ = 0) * pse_ready * !(pwr_app_a + pwr_app_b) * (mr_pse_enable = enable)
B
START_CXN_CHK
start tcc_timer
do_cxn_chk
(mr_pse_enable = force_power) * (ovld_det_a + short_det_a + ovld_det_b + short_det_b)
TEST_ERROR
alt_a_pwrd <= FALSE
alt_b_pwrd <= FALSE
mr_pse_enable = enable
A
((CC_DET_SEQ = 1) + (mr_pse_alternative = a) + (mr_pse_alternative = b)) * pse_ready * !(pwr_app_a + pwr_app_b) * (mr_pse_enable = enable)
C
do_cxn_chk_done * (tcc_timer > tcc_min)
CXN_CHK_EVAL
IF (CC_DET_SEQ = 0) THEN
start tcc2det_timer
START_DETECT
start tdet_timer
IF (CC_DET_SEQ = 0) + (CC_DET_SEQ = 1) THEN
IF (det_temp = 0) THEN
do_detect_a
det_temp <= 1
ELSE
do_detect_b
det_temp <= 0
IF (mr_pse_alternative = a) THEN
do_detect_a
IF (mr_pse_alternative = b) THEN
do_detect_b
(CC_DET_SEQ = 2) * pse_ready * !(pwr_app_a + pwr_app_b) * (mr_pse_enable = enable)
START_CXN_CHK_DETECT
start tdet_timer
do_cxn_chk
do_detect_a
do_detect_b
(sig_type = single) * ((CC_DET_SEQ = 0) * !tcc2det_timer_done + (CC_DET_SEQ = 1) * (sig_a = valid) * !tdet2det_timer_done)
C
tdet_timer_done
A
tdet_timer_done
A
(sig_type = dual) * ((CC_DET_SEQ = 0) * !tcc2det_timer_done + (CC_DET_SEQ = 1) * !tdet2det_timer_done)
E
D
(do_detect_a_done * (det_temp = 1) + do_detect_b_done + (mr_pse_alternative = a) * do_detect_a_done) * !tdet_timer_done
do_cxn_chk_done * do_detect_a_done * do_detect_b_done * !tdet_timer_done
F
(sig_type = open_circ) + (sig_type = single) * (CC_DET_SEQ = 1) * (sig_a = invalid) + tcc2det_timer_done + tdet2det_timer_done
A

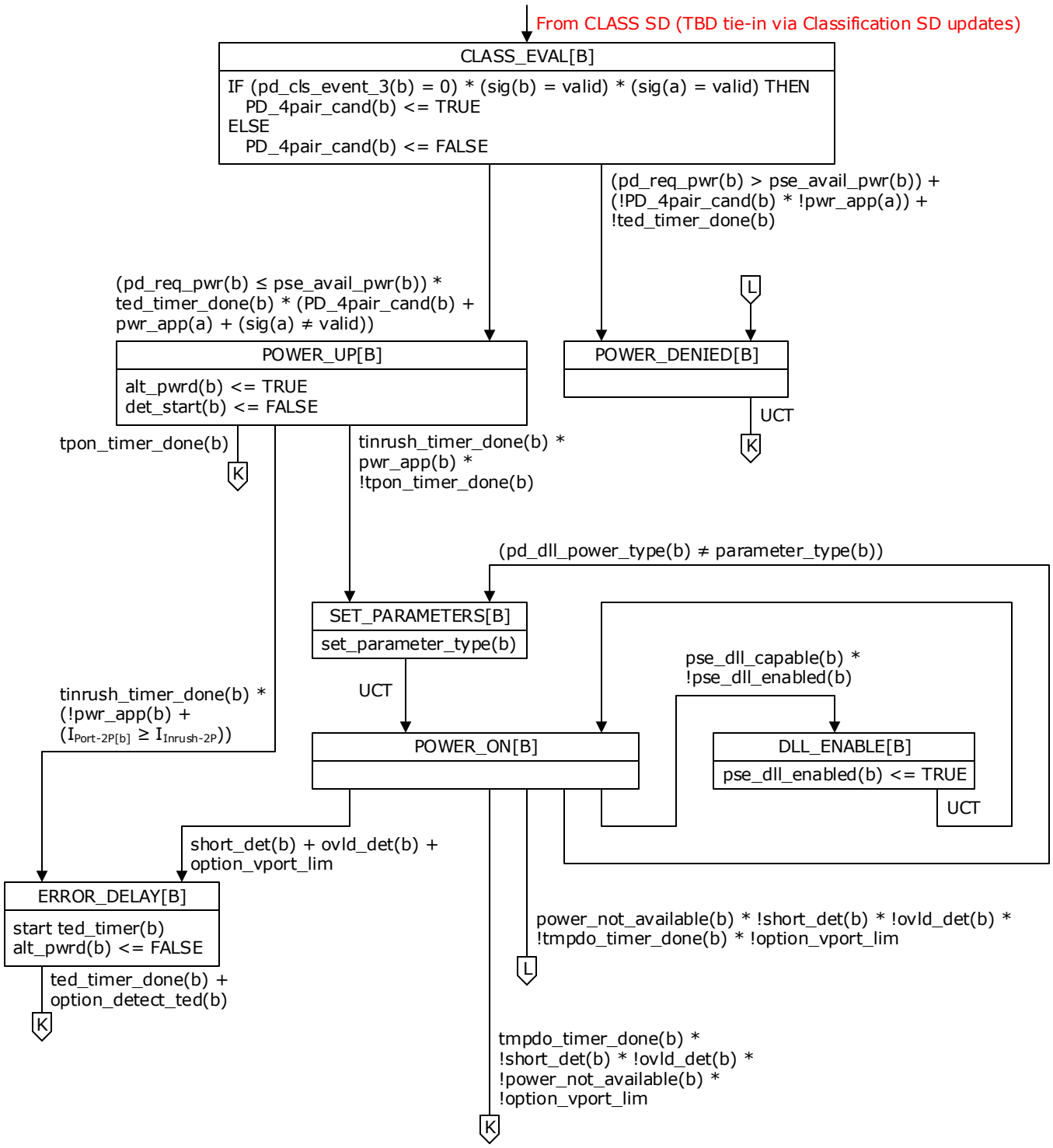

D
DETECT_EVAL
IF (det_temp = 1) THEN
start tdet2det_timer
ELSE
start tpon_timer
(mr_pse_alternative = b) *
(sig_b = invalid)
BACKOFF
start tdbo_timer
tdbo_timer_done
A
(CC_DET_SEQ = 1) * (det_temp = 1) *
!tdet2det_timer_done
B
(CC_DET_SEQ = 0) * (det_temp = 1) *
(sig_a = valid) * !tdet2det_timer_done
C
(mr_pse_alternative = a) * (sig_a = valid) +
(mr_pse_alternative = b) * (sig_b = valid) +
(det_temp = 0) * (sig_b = valid)
A1
(CC_DET_SEQ = 0) * (det_temp = 1) * (sig_a ≠ valid) +
((CC_DET_SEQ = 0) + (CC_DET_SEQ = 1)) *
(det_temp = 0) * (sig_b = invalid) +
(mr_pse_alternative = a) * (sig_a ≠ valid) +
(mr_pse_alternative = b) * (sig_b = open_circuit) +
tdet2det_timer_done
A
F
CXN_CHK_DETECT_EVAL
IF (sig_type = single) * (sig_a = valid) *
(sig_b = valid) THEN
start tpon_timer
(sig_type = open_circ) +
(sig_type = single) *
((sig_a = invalid) +
(sig_b = invalid)) +
(sig_type = dual) *
(sig_a = invalid) *
(sig_b = invalid)
A
(sig_type = single) *
(sig_a = valid) * (sig_b = valid)
A1
(sig_type = dual) *
((sig_a = valid) + (sig_b = valid))
G


From CLASS SD (TBD tie-in via Classification SD updates)
CLASS_EVAL
(pd_req_pwr ≤ pse_avail_pwr) *
ted_timer_done
(pd_req_pwr > pse_avail_pwr) +
!ted_timer_done
POWER_UP
IF (mr_pse_alternative = a) THEN
alt_a_pwrd <= TRUE
IF (mr_pse_alternative = b) THEN
alt_b_pwrd <= TRUE
IF (sig_type = single) THEN
alt_a_pwrd <= TRUE
alt_b_pwrd <= TRUE
H
POWER_DENIED
UCT
A
tpon_timer_done
A
((mr_pse_alternative = a) * tinrush_a_timer_done * pwr_app_a +
(mr_pse_alternative = b) * tinrush_b_timer_done * pwr_app_b +
(sig_type = single) * tinrush_a_timer_done * pwr_app_a *
tinrush_b_timer_done * pwr_app_b) * !tpon_timer_done
(mr_pse_alternative = a) *
tinrush_a_timer_done *
(!pwr_app_a +
(I Port-2P-a ≥ I Inrush-2P)) +
(mr_pse_alternative = b) *
tinrush_b_timer_done *
(!pwr_app_b +
(I Port-2P-b ≥ I Inrush-2P)) +
(sig_type = single) *
(tinrush_a_timer_done *
(!pwr_app_a +
(I Port-2P-a ≥ I Inrush-2P)) +
tinrush_b_timer_done *
(!pwr_app_b +
(I Port-2P-b ≥ I Inrush-2P)))
(pd_dll_power_type ≠ parameter_type)
SET_PARAMETERS
set_parameter_type
UCT
POWER_ON
IF (sig_type = single) THEN
IF ((dll_4PID = 0) +
(mr_pse_ss_mode = 0)) THEN
alt_a_pwrd <= TRUE
alt_b_pwrd <= FALSE
ELSE
alt_a_pwrd <= TRUE
alt_b_pwrd <= TRUE
pse_dll_capable *
!pse_dll_enabled
DLL_ENABLE
pse_dll_enabled <= TRUE
UCT
short_det_a + short_det_b +
ovld_det_a + ovld_det_b +
option_vport_lim
power_not_available *
!short_det_a * !short_det_b *
!ovld_det_a * !ovld_det_b *
!tmpdo_timer_done * !option_vport_lim
H
ERROR_DELAY
start ted_timer
alt_a_pwrd <= FALSE
alt_b_pwrd <= FALSE
ted_timer_done +
option_detect_ted
A
tmpdo_timer_done *
!short_det_a * !short_det_b *
!ovld_det_a * !ovld_det_b *
!power_not_available *
!option_vport_lim
A


I
IDLE[A]
alt_pwrd(a) <= FALSE
det_start(a) <= FALSE
!alt_pwrd(b) * !det_start(b)
A
!pwr_app(a) * pwr_app(b)
E
START_DETECT[A]
start tdet_timer(a)
do_detect(a)
det_start(a) <= TRUE
tdet_timer_done(a)
I
do_detect_done(a) *
!tdet_timer_done(a)
G
DETECT_EVAL[A]
start tpon_timer(a)
(sig(a) ≠ valid)
I
A1
(sig(a) = valid)


From CLASS SD (TBD tie-in via Classification SD updates)
CLASS_EVAL[A]
IF (pd_cls_event_3(a) = 0) * (sig(a) = valid) * (sig(b) = valid) THEN
PD_4pair_cand(a) <= TRUE
ELSE
PD_4pair_cand(a) <= FALSE
(pd_req_pwr(a) > pse_avail_pwr(a)) +
(!PD_4pair_cand(a) * alt_pwrd(b)) +
!ted_timer_done(a)
(pd_req_pwr(a) ≤ pse_avail_pwr(a)) *
ted_timer_done(a) * (PD_4pair_cand(a) +
!alt_pwrd(b) + pwr_app(b))
J
POWER_UP[A]
alt_pwrd(a) <= TRUE
det_start(a) <= FALSE
POWER_DENIED[A]
UCT
I
tpon_timer_done(a)
I
tinrush_timer_done(a) *
pwr_app(a) *
!tpon_timer_done(a)
(pd_dll_power_type(a) ≠ parameter_type(a))
SET_PARAMETERS[A]
set_parameter_type(a)
UCT
pse_dll_capable(a) *
!pse_dll_enabled(a)
tinrush_timer_done(a) *
(!pwr_app(a) +
(I_Port-2P[a] ≥ I_Inrush-2P))
POWER_ON[A]
DLL_ENABLE[A]
pse_dll_enabled(a) <= TRUE
UCT
short_det(a) + ovld_det(a) +
option_vport_lim
ERROR_DELAY[A]
start ted_timer(a)
alt_pwrd(a) <= FALSE
ted_timer_done(a) +
option_detect_ted(a)
I
power_not_available(a) * !short_det(a) * !ovld_det(a) *
!tmpdo_timer_done(a) * !option_vport_lim
J
tmpdo_timer_done(a) *
!short_det(a) * !ovld_det(a) *
!power_not_available(a) *
!option_vport_lim
I


K
IDLE[B]
alt_pwrd(b) <= FALSE
det_start(b) <= FALSE
!alt_pwrd(a) * !det_start(a)
A
!pwr_app(b) * pwr_app(a)
E
START_DETECT[B]
start tdet_timer(b)
do_detect(b)
det_start(b) <= TRUE
tdet_timer_done(b)
K
do_detect_done(b) *
!tdet_timer_done(b)
G
DETECT_EVAL[B]
start tpon_timer(b)
(sig(b) ≠ valid)
K
A1
(sig(b) = valid)


From CLASS SD (TBD tie-in via Classification SD updates)
CLASS_EVAL[B]
IF (pd_cls_event_3(b) = 0) * (sig(b) = valid) * (sig(a) = valid) THEN
PD_4pair_cand(b) <= TRUE
ELSE
PD_4pair_cand(b) <= FALSE
(pd_req_pwr(b) > pse_avail_pwr(b)) +
(!PD_4pair_cand(b) * !pwr_app(a)) +
!ted_timer_done(b)
(pd_req_pwr(b) ≤ pse_avail_pwr(b)) *
ted_timer_done(b) * (PD_4pair_cand(b) +
pwr_app(a) + (sig(a) ≠ valid))
L
POWER_UP[B]
alt_pwrd(b) <= TRUE
det_start(b) <= FALSE
POWER_DENIED[B]
UCT
K
tpon_timer_done(b)
K
tinrush_timer_done(b) *
pwr_app(b) *
!tpon_timer_done(b)
(pd_dll_power_type(b) ≠ parameter_type(b))
SET_PARAMETERS[B]
set_parameter_type(b)
UCT
pse_dll_capable(b) *
!pse_dll_enabled(b)
tinrush_timer_done(b) *
(!pwr_app(b) +
(I_Port-2P[b] ≥ I_Inrush-2P))
POWER_ON[B]
DLL_ENABLE[B]
pse_dll_enabled(b) <= TRUE
UCT
short_det(b) + ovld_det(b) +
option_vport_lim
ERROR_DELAY[B]
start ted_timer(b)
alt_pwrd(b) <= FALSE
ted_timer_done(b) +
option_detect_ted(b)
K
power_not_available(b) * !short_det(b) * !ovld_det(b) *
!tmpdo_timer_done(b) * !option_vport_lim
L
tmpdo_timer_done(b) *
!short_det(b) * !ovld_det(b) *
!power_not_available(b) *
!option_vport_lim
K