

Response to comments on Clause 24 of Draft 1p1

IEEE 802.3az Task Force
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Objectives

- ❑ Modify Receive state diagram (Fig 24-11) of Clause 24 to cover some corner cases and less robust conditions as pointed out in comments:
 - Comment 74 : Branch condition from RX_SLEEP to IDLE state should be more restrictive
 - Comment 88 & 243 : lpi_rx_tq_timer should not be reset upon re-entry to state RX_QUIET.
 - Comment 99 : Add a transition from BAD SSD to RX SLEEP with the transition condition rx_bits[9:0] = /P/P/.
 - Comment 242 : Variables setting of "BAD SSD" state should be RXD<3:0> = 1110 (and RX_ER = TRUE).
- ❑ Add a new timer lpi_rx_ti_timer to resolve comment 74 with a proposed value between 1 us to 1.2 us.

Receive state diagram

Comment 99
Suggest to Add a transition from BAD SSD to RX SLEEP

Comment 242
Value assignments are incomplete

Comment 74
May accidentally get into IDLE during the transition from RX_SLEEP to RX_QUIET

Comment 88 & 243
May unnecessarily reset the lpi_rx_tq_timer causing indefinite loop between RX_QUIET and RX_WAKE

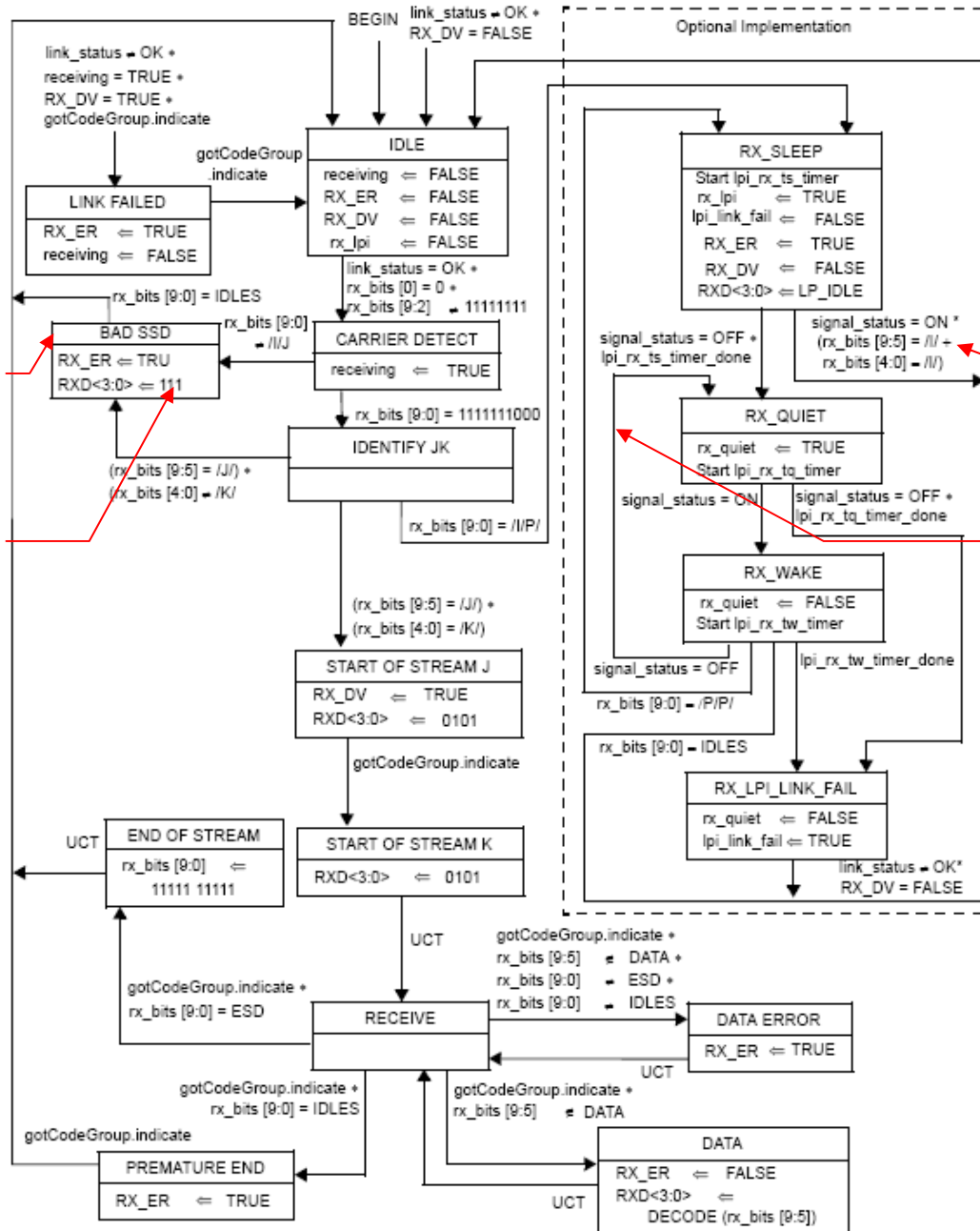
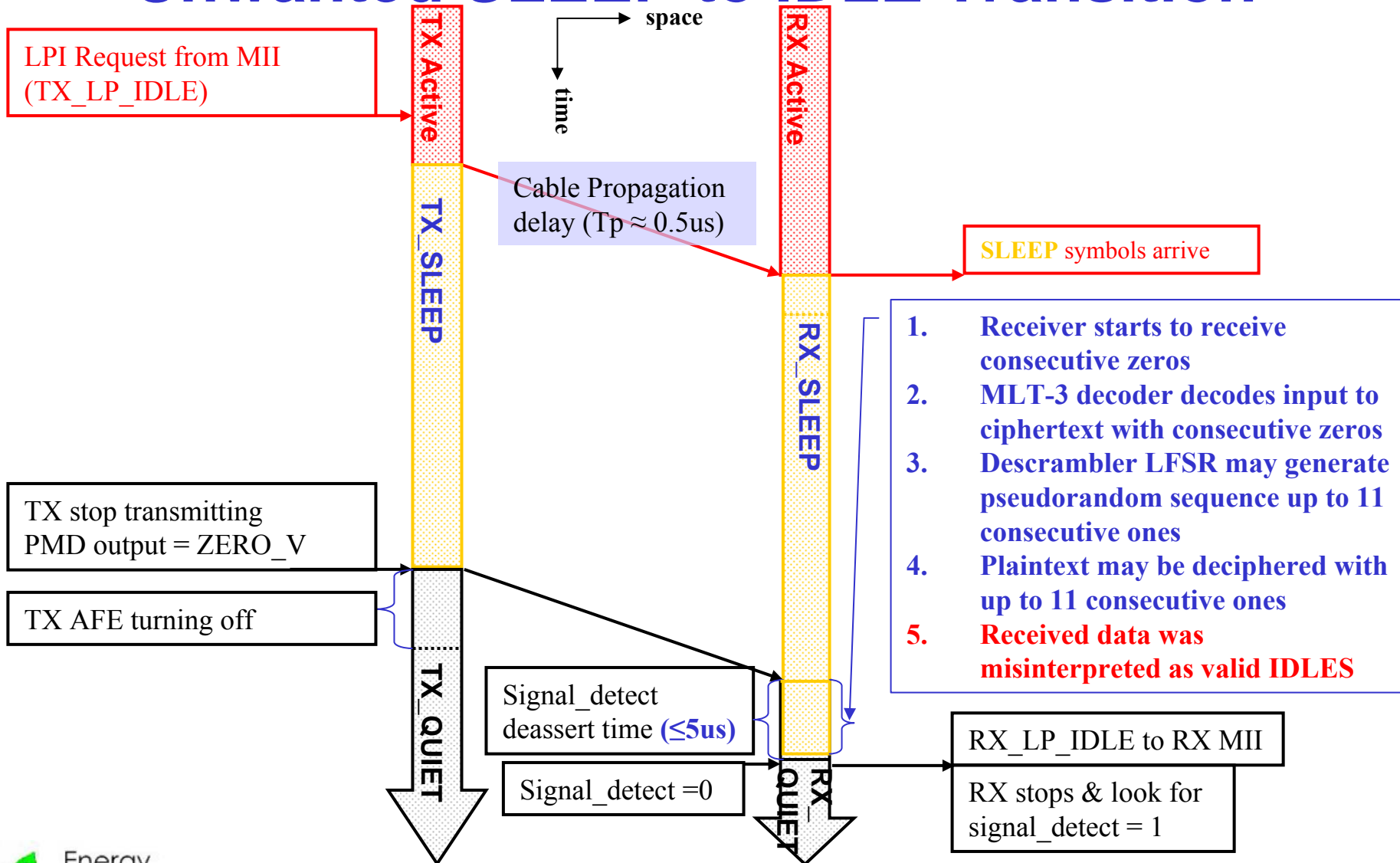


Figure 24-11—Receive state diagram

Comment 74: Unwanted SLEEP to IDLE Transition



Comment 74: Remedy

- ❑ Introduce a new state WAIT_IDLE between RX_SLEEP and IDLE
 - Check the minimum duration of IDLE symbols before exiting the low power receive state.
 - Return to RX_SLEEP for conditions other than consecutive IDLE symbols.
- ❑ Add a new timer lpi_rx_ti_timer
 - To count the minimum duration of consecutive IDLE symbols.
 - The maximum number of all ones possibly deciphered during the transition from RX_SLEEP to RX_QUIET is 11 bits time, which is $8 \text{ ns} * 11 = 88 \text{ ns}$.
 - Propose a default value between 1.0us to 1.2 us.
 - This timer won't affect Wakeup time.
- ❑ Add a new state START_SLEEP
 - To avoid resetting the timer lpi_rx_ts_timer during the reentry to RX_SLEEP from WAIT_IDLE

Revised Receive state diagram

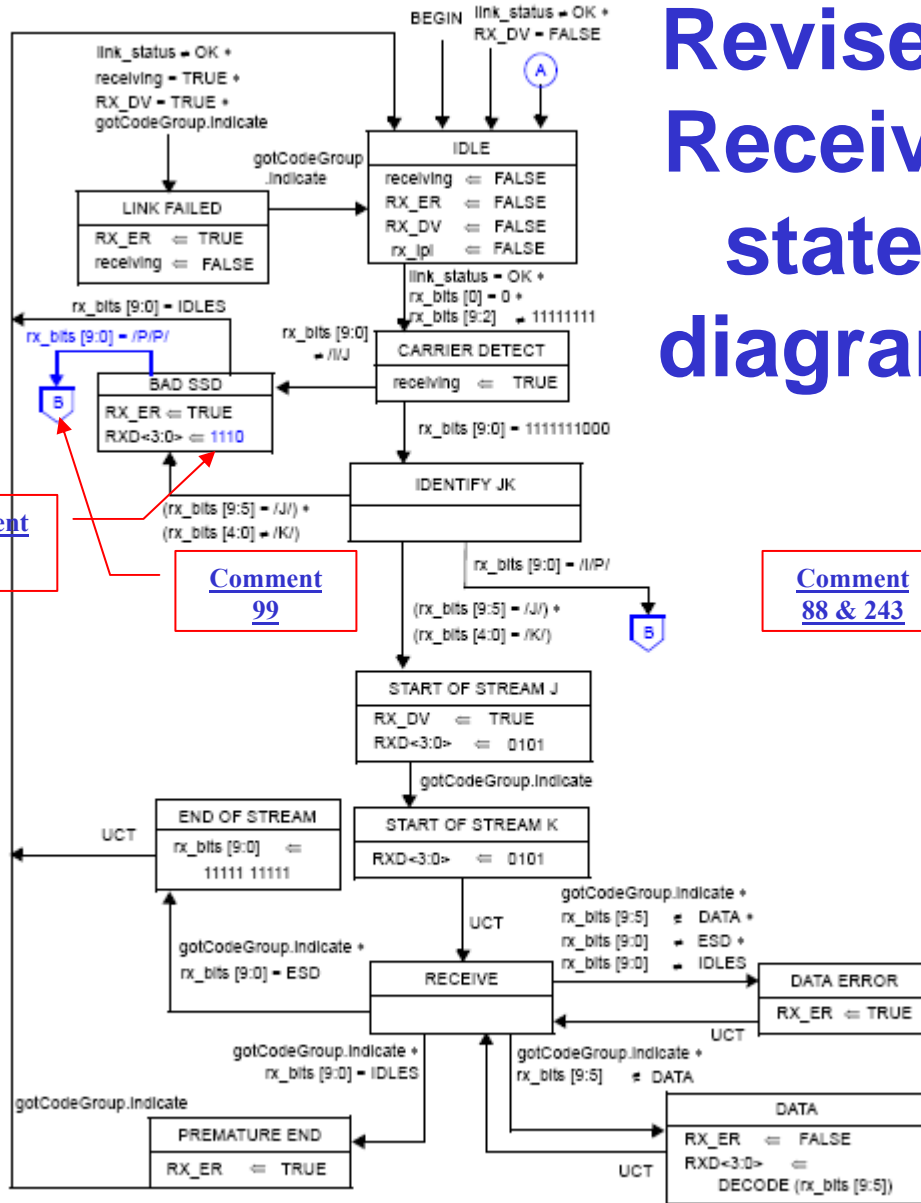


Figure 24-11a—Receive state diagram, part a

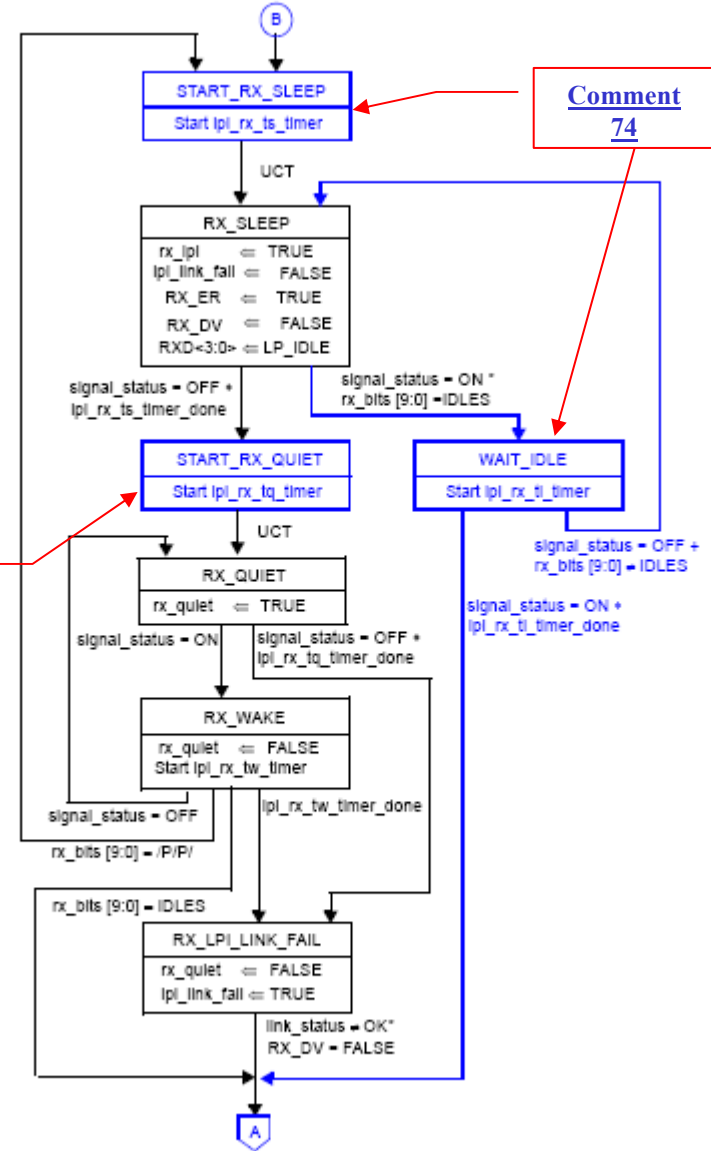


Figure 24-11b—Receive state diagram, part b (optional)

Comment 242

Comment 99

Comment 88 & 243

Comment 74

Response to other comments

- ❑ Comment 88 & 243 : Introduce a new state START_RX_QUIET as suggested by commentators.
- ❑ Comment 99 : Add a transition from BAD SSD to RX SLEEP with the transition condition $rx_bits[9:0] = /P/P/$ as suggested by commentator.
- ❑ Comment 242 : Variables setting of "BAD SSD" state should be $RXD<3:0> = 1110$ as suggested by commentator. Additionally, $RX_ER = TRUE$ is revised.

Thank you !