

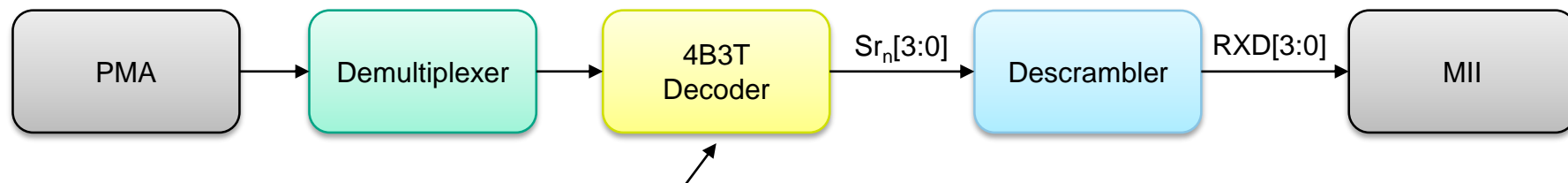


# 10 Mb/s Single Twisted Pair Ethernet 10BASE-T1L Receive State Diagram (Comment #577)

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# 10BASE-T1L Receive State Diagram

- Currently the 10BASE-T1L receive path is done in the following way:



This is the actual DECODE function in the receive state diagram.

- Therefore the Receive state diagram returns  $Sr_n[3:0]$  instead of  $RXD[3:0]$  as in other standards.
- The DECODE function in the current draft D2.0 is defined as:

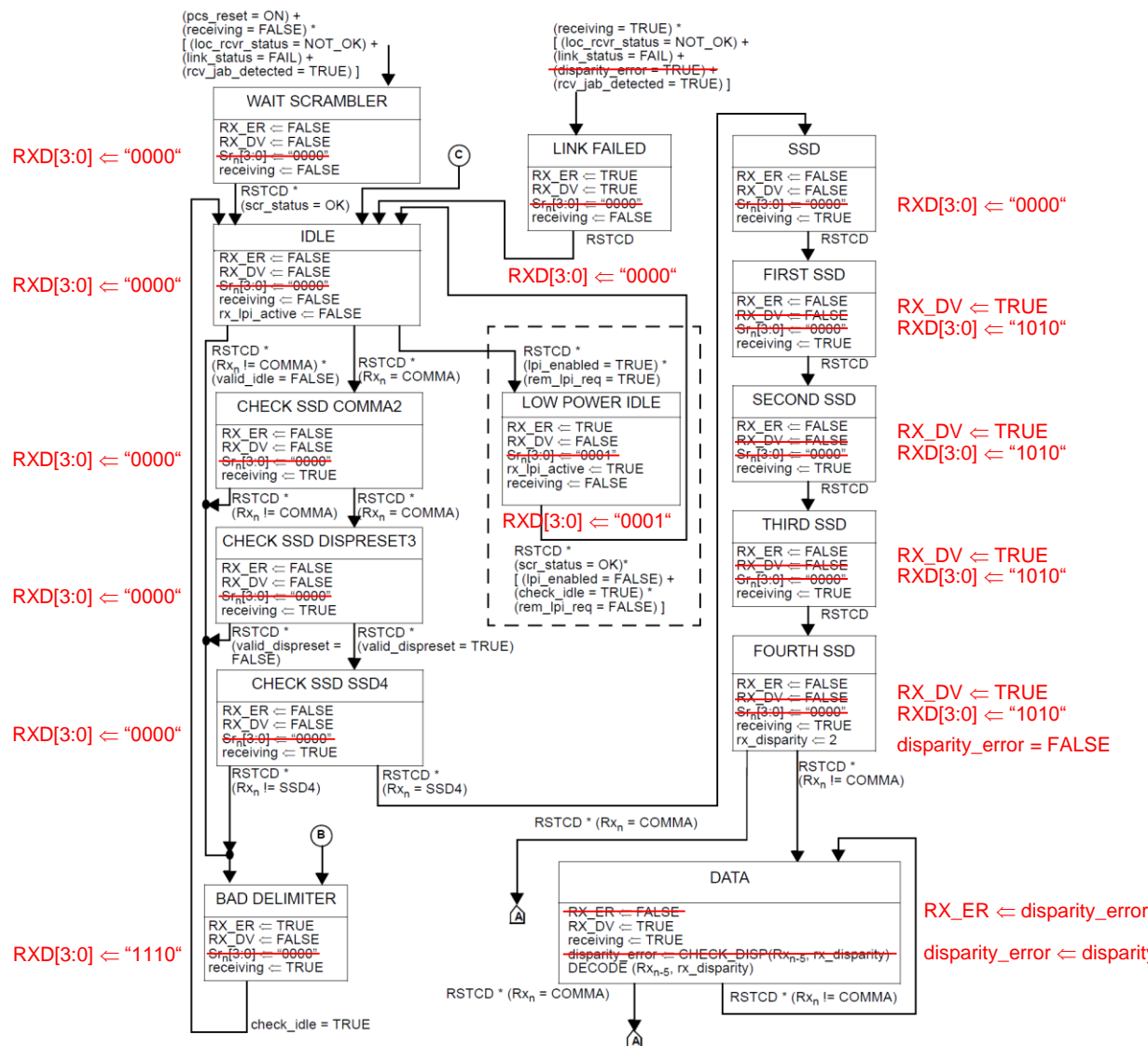
$$Sr_n[3:0] = \text{inverse}_{table_{4B3T}}(Rx_n)$$

- Including the descrambler functionality it needs to be changed to:

$$RXD[3:0] = \text{descramble}(\text{inverse}_{table_{4B3T}}(Rx_n))$$

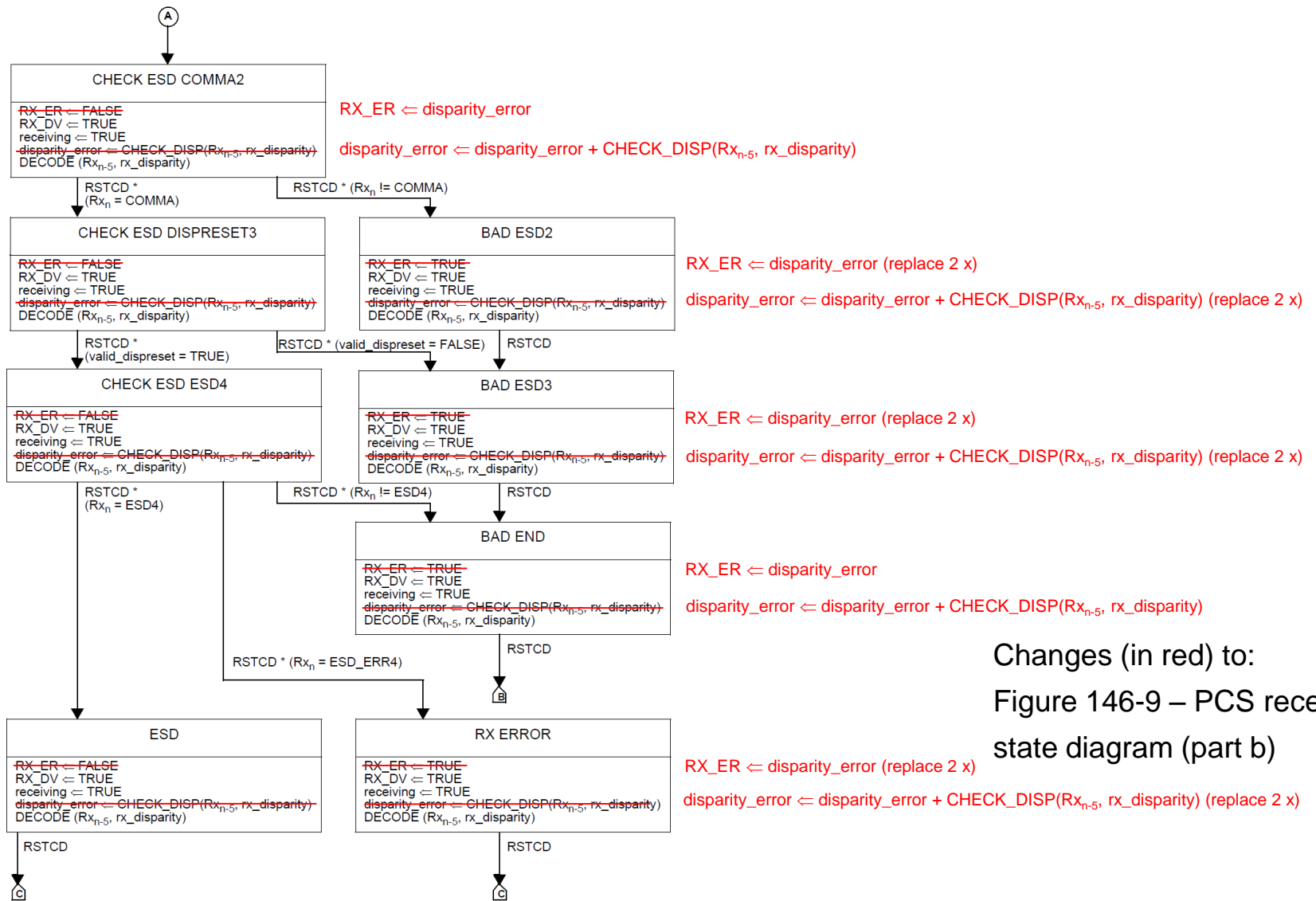
- Additionally the changes provided on the next two pages are proposed to be done:
  - These changes allow to output  $RXD[3:0]$  instead of  $Sr_n[3:0]$  and therefore support to provide the correct LPI encoding “0001” on the MII.
  - In „BAD DELIMITER“ state  $RXD[3:0]$  is encoded as „1110“, which is a „false carrier indication“.
  - Additionally the part of the preamble being replaced by the SSD is now recovered, allowing back-to-back PHY configuration, as the preamble is not shorted anymore.
  - A detected disparity error it not completely resetting the state machine anymore, going to state „LINK FAILED“, but just setting  $RX\_ER$ , which is a „less aggressive“ behavior, but still allowing to detect disparity errors.

# 10BASE-T1L Receive State Diagram



Changes (in red) to:  
Figure 146-8 – PCS receive  
state diagram (part a)

# 10BASE-T1L Receive State Diagram



Changes (in red) to:  
Figure 146-9 – PCS receive  
state diagram (part b)

# Thank You