Updated suggested remedy for i-368

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Comment i-368

Cl **178B** *SC* **178B.8.3.5** *P* **891** *L* **47** # I-368

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Comment Type **TR** *Comment Status* **X**

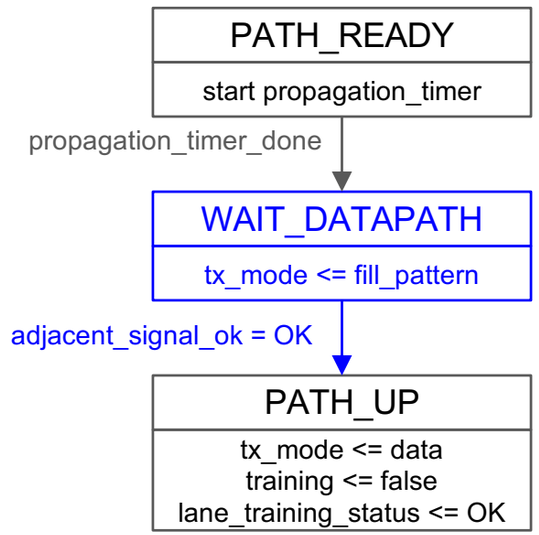
As shown in https://ieee802.org/3/dj/public/26_03/slavick_3dj_02_2603.pdf we need to specify the data that transmitted while chip level datapath logic initializes.

SuggestedRemedy

Insert a new state "WAIT_DATAPATH" between PATH_READY and PATH_UP. Entry from PATH_READY occurs when propagation_timer_done is true, the exit to PATH_UP occurs when "adjacent_signal_ok = OK" and within the state "tx_mode <= fill_pattern

In 178B.8.3.1 update tx_mode to add another enumeration
fill_pattern: transmits either training frames or local_pattern

Proposed Response *Response Status* **O**



tx_mode

Enumerated variable that controls the content of the transmitter output of the lane when tx-disable is false. It is set by the training control state diagram (Figure 178B-10) to one of the values:
training: transmit training frames (see 178B.7.3)
local_pattern: transmit a pattern specified by the clause or annex that defines the interface
fill_pattern: transmit either training frames or local_pattern
data: transmit data from the PMA or Inner FEC

Issue

SIGNAL_OK will remain as READY while in this new state. But we're waiting for the Inner FEC or PMA logic to align to the data so that we have "good" data from those layers to transmit. However, the those layers need a value of OK to begin to process the data.

Table 176–5—PMA:IS_SIGNAL.indication(SIGNAL_OK) generation

inst:IS_SIGNAL.indication[a] SIGNAL_OK	align_status_mux[b] or all_locked_demux[c]	PMA:IS_SIGNAL.indication SIGNAL_OK
OK	true	OK
OK	false	READY
READY	don't care	READY
IN_PROGRESS	don't care	IN_PROGRESS
FAIL	don't care	FAIL

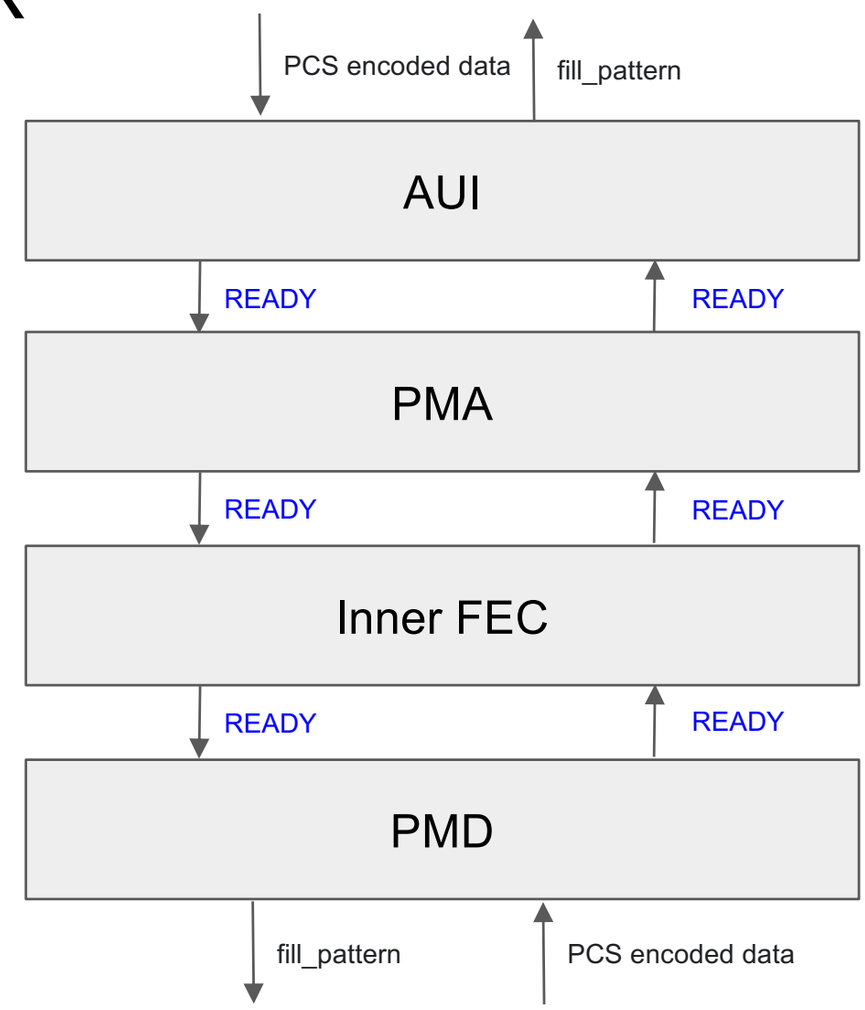
Table 177–1—FEC:IS_SIGNAL.indication(SIGNAL_OK) generation

PMD:IS_SIGNAL.indication SIGNAL_OK value	all_synced (see 177.7.2.1)	FEC:IS_SIGNAL.indication SIGNAL_OK
OK	true	OK
OK	false	READY
READY	don't care	READY
IN_PROGRESS	don't care	IN_PROGRESS
FAIL	don't care	FAIL

So a retimer/gearbox gets stuck

The AUI component is receiving and providing PCS encoded data to the PMA, however even if its align_status_demux is true, it still tells the Inner FEC READY.

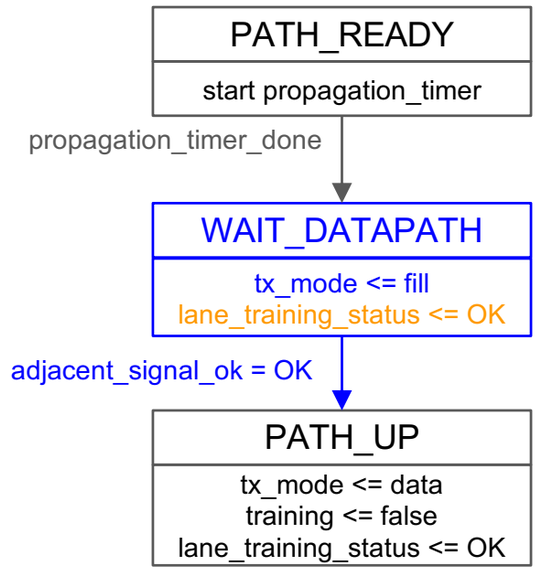
Same is true of the Inner FEC telling the AUI component and PMA that we're still in the READY state even though all_synced is true.



Comment i-368 updated remedy

Set the training status to OK in WAIT_DATAPATH so that the Rx indicates it's done and the next layer can begin to parse the data, but we hold the Tx mode change up until we know the data coming in is good to transmit.

Also use fill instead of fill_pattern as we're not defining a new pattern to use but rather options on what pattern to fill with.



tx_mode

Enumerated variable that controls the content of the transmitter output of the lane when tx-disable is false. It is set by the training control state diagram (Figure 178B-10) to one of the values:
training: transmit training frames (see 178B.7.3)
local_pattern: transmit a pattern specified by the clause or annex that defines the interface
fill: transmit either training frames or local_pattern
data: transmit data from the PMA or Inner FEC

Thank you.