



AQUANTIA

ACCELERATING CONNECTIVITY

EEE state machine issue

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Problem Description

- The EEE machinery is not taking care of the fact that Alert transmission is only allowed to start every 8th RS-Frame.
- An existing variable, tx_alert_start is active on the first frame of alert, but this would be too late for the EEE transmit state machine to change to SEND_ALERT state, we need to change state as the RS-Frame prior to alert ends

Solution Description

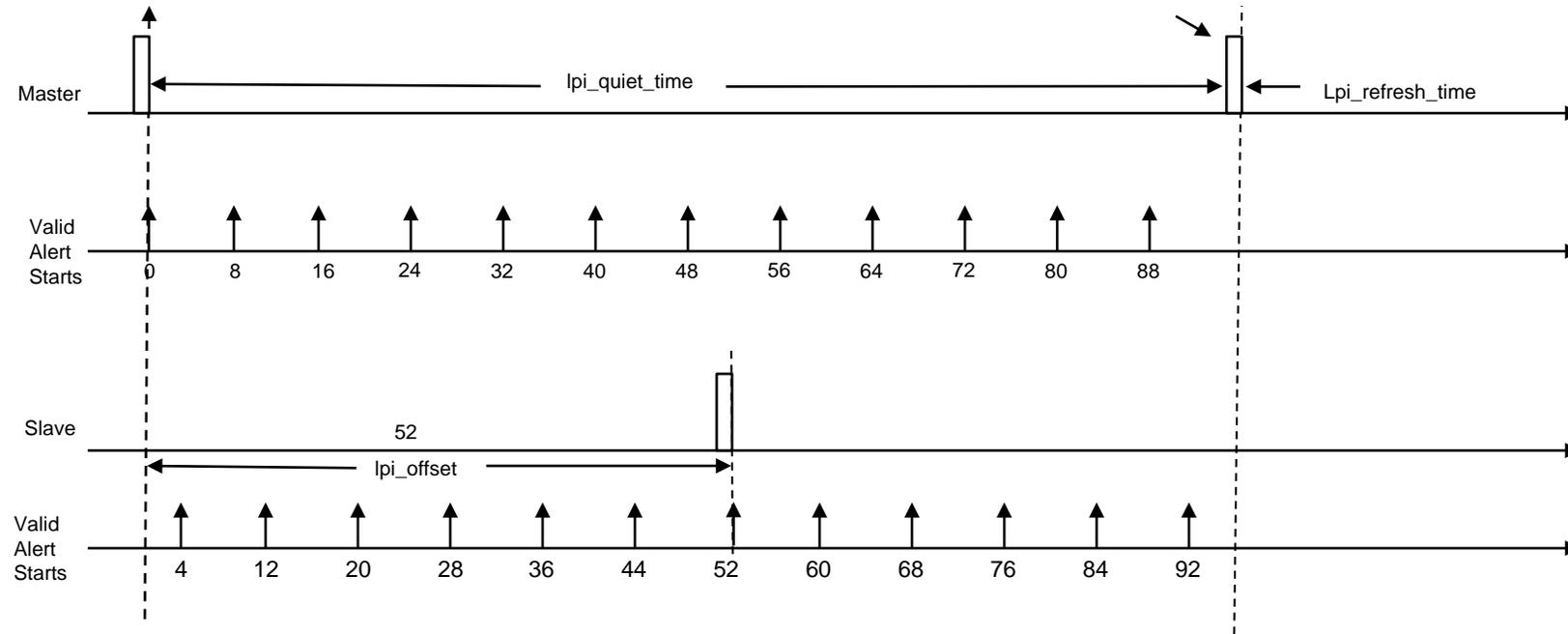
- Clause 149.3.5.1: P100, L12, change tx_alert_start to tx_alert_start_next
- Clause 149.3.6.2.2: P103, L5, Remove description of tx_lpi_alert_active
 - In its place add the following description

tx_lpi_alert_start_next

A Boolean variable that is set true on the frame prior to the one that alert transmission can start.

- Calculate value for tx_alert_start_next on page 100 as per tables on slide 4
- Change the PCS State machine as per slide 5
- Change the EEE state machine as per slide 6
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Valid Alert Starts figure 149-12



EEE Alert Active, section 149.3.5.1

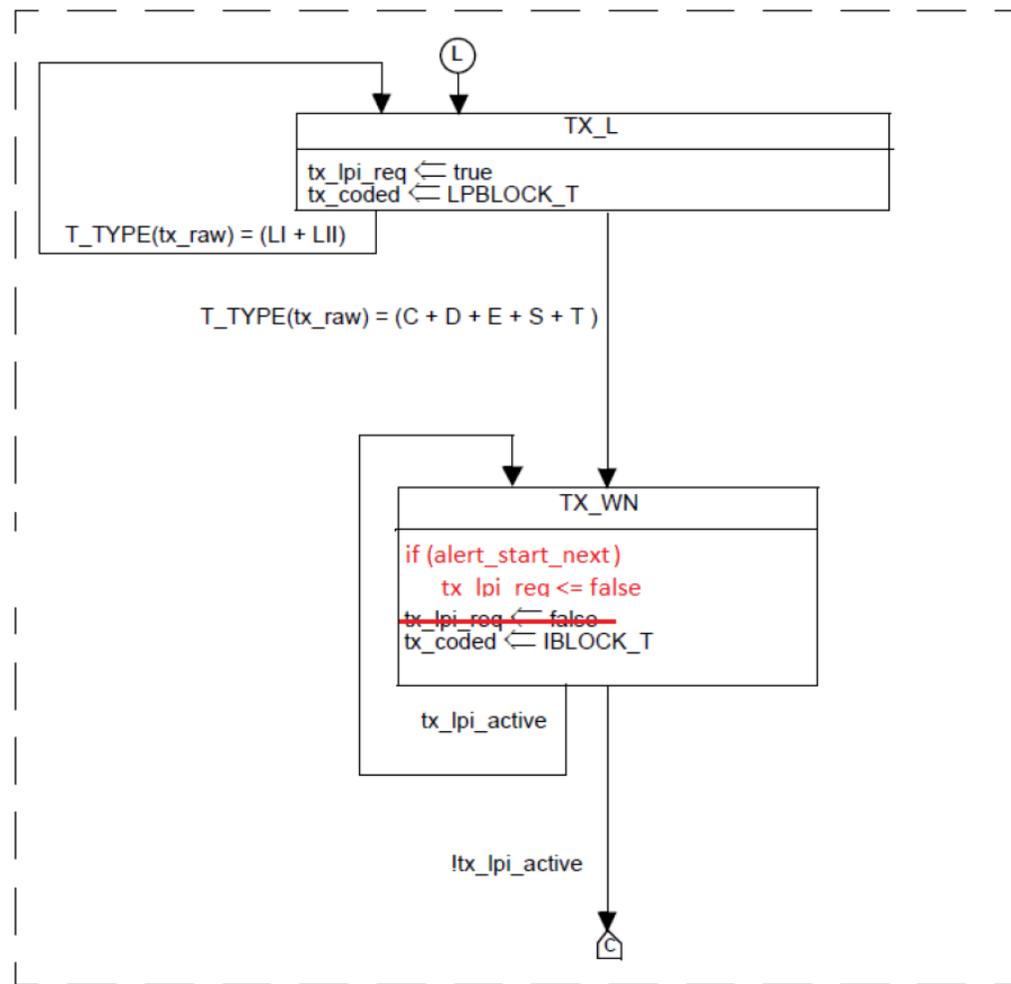
Table 149–4—Synchronization logic derived from slave signal RS-FEC frame count

Slave-side variable	u=tx_rsfc
tx_alert_start=true tx_alert_start_next = true	mod(u, alert_period) = alert_period/2 mod(u,alert_period) = alert_period/2 -1

Table 149–5—Synchronization logic derived from master signal RS-FEC frame count

Master-side variable	v=tx_rsfc
tx_alert_start=true tx_alert_start_next = true	mod(v, alert_period) = 0 mod(v,alert_period) = alert_period -1

Changes to PCS transmit state machine P110 L9



NOTE—This figure is mandatory for PHYs with the EEE capability.

Figure 149–15—PCS 64B/65B Transmit state diagram, part b

Thank you.

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