



EEE & LPI comments

4/16/2019

EEE Alert Start

Moved to Benjamin_3ch_3_041619

Mechanism To Prevent Partial Refresh

- Our EEE related state machines are copied from 802.3bz, these state machines had provisions in them to prevent transmission of partial refresh in cases where LPI cycle started in the middle of a multi-frame long refresh cycle. Such refresh cycles are skipped in 802.3bz and quiet is transmitted.
- IEEE 802.3ch uses a single RS frame long refresh and as such does not need the mechanics to provide for this.
- While as it stands, the standard is technically correct, it has states and variables that will never be active.
- Variables
 - Tx_lpi_full_refresh partial refresh detector
 - Tx_lpi_initial_quiet quiet is being transmitted in place of refresh
- States
 - SEND_INITIAL_QUIET quiet overriding refresh

Mechanism to Prevent Partial Refresh

- Tables 149-4 and 149-5 take out formula for calculation of tx_lpi_full_refresh

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

Slave-side variable	$u=tx_rsfc$
tx_refresh_active=true	$lpi_offset - lpi_refresh_time \leq \text{mod}(u, lpi_qr_time) < lpi_offset$
tx_alert_start=true	$\text{mod}(u, alert_period) = alert_period/2$
tx_lpi_full_refresh=true	$\text{mod}(u, lpi_qr_time) = lpi_offset - lpi_refresh_time$

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

Master-side variable	$v=tx_rsfc$
tx_refresh_active=true	$\text{mod}(v, lpi_qr_time) \geq lpi_quiet_time$
tx_alert_start=true	$\text{mod}(v, alert_period) = 0$
tx_lpi_full_refresh=true	$\text{mod}(v, lpi_qr_time) = lpi_quiet_time$

Mechanism to Prevent Partial Refresh

- Section 149.3.6.2.2 take out definition of tx_lpi_full_refresh
- Section 149.3.6.2.2 take out definition of tx_lpi_initial_quiet
- Section 149.3.6.2.2 take out tx_lpi_initial_quiet usage in lpi_tx_mode

lpi_tx_mode

A variable indicating the signaling to be used from the PCS to the PMA across the PMA_UNITDATA.request (tx_symb) interface.

lpi_tx_mode controls tx_symb only when tx_mode is set to SEND_N.

The variable is set to NORMAL when (!tx_lpi_qr_active * !tx_lpi_alert_active), indicating that the PCS is in the normal mode of operation and will encode code-groups as described in Figure 149–14 and Figure 149–15.

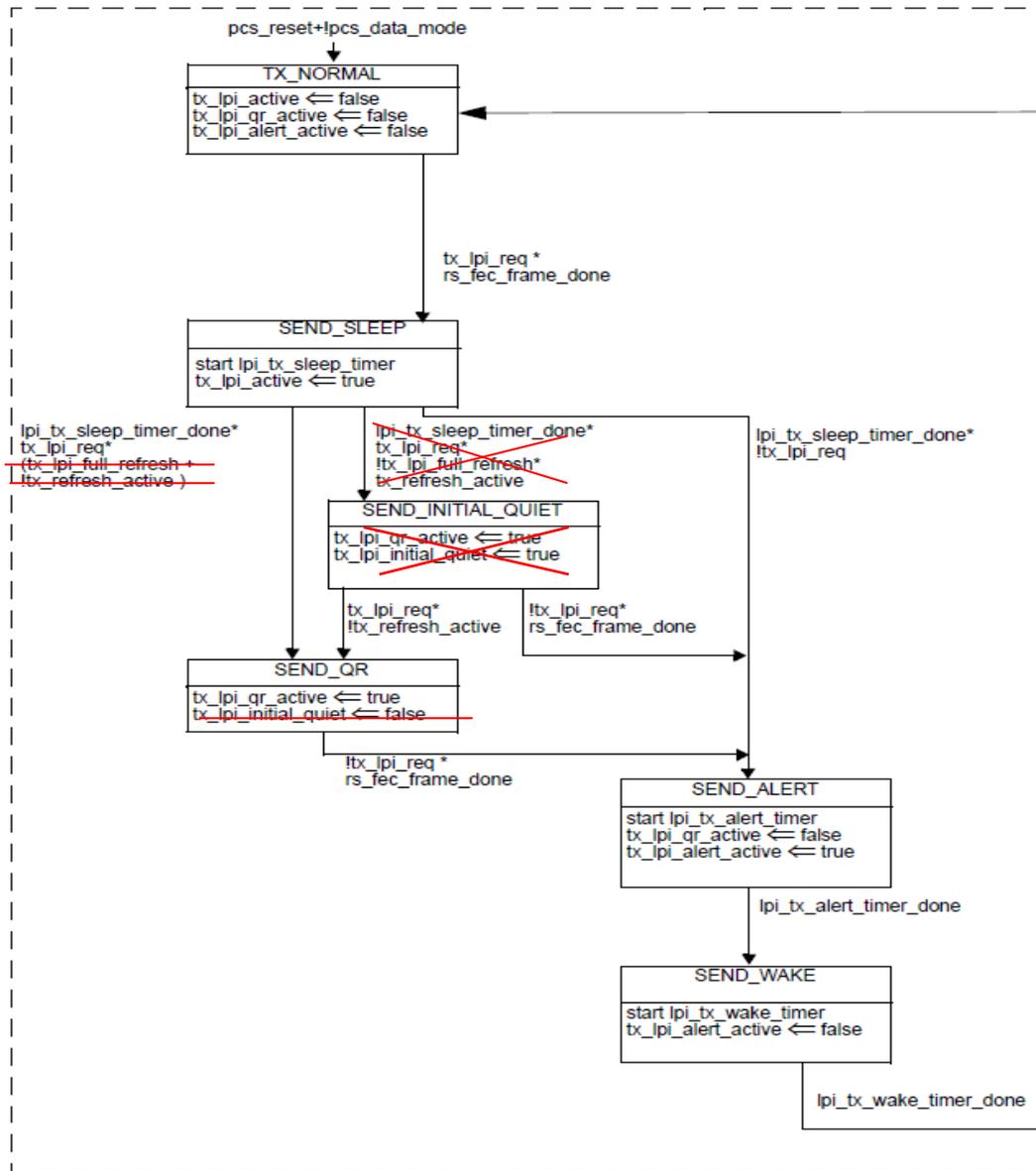
The variable is set to REFRESH when (tx_lpi_qr_active * tx_refresh_active).

The variable is set to QUIET when (tx_lpi_qr_active * (!tx_refresh_active + ~~tx_lpi_initial_quiet~~)).

The variable is set to ALERT when (tx_lpi_alert_active)

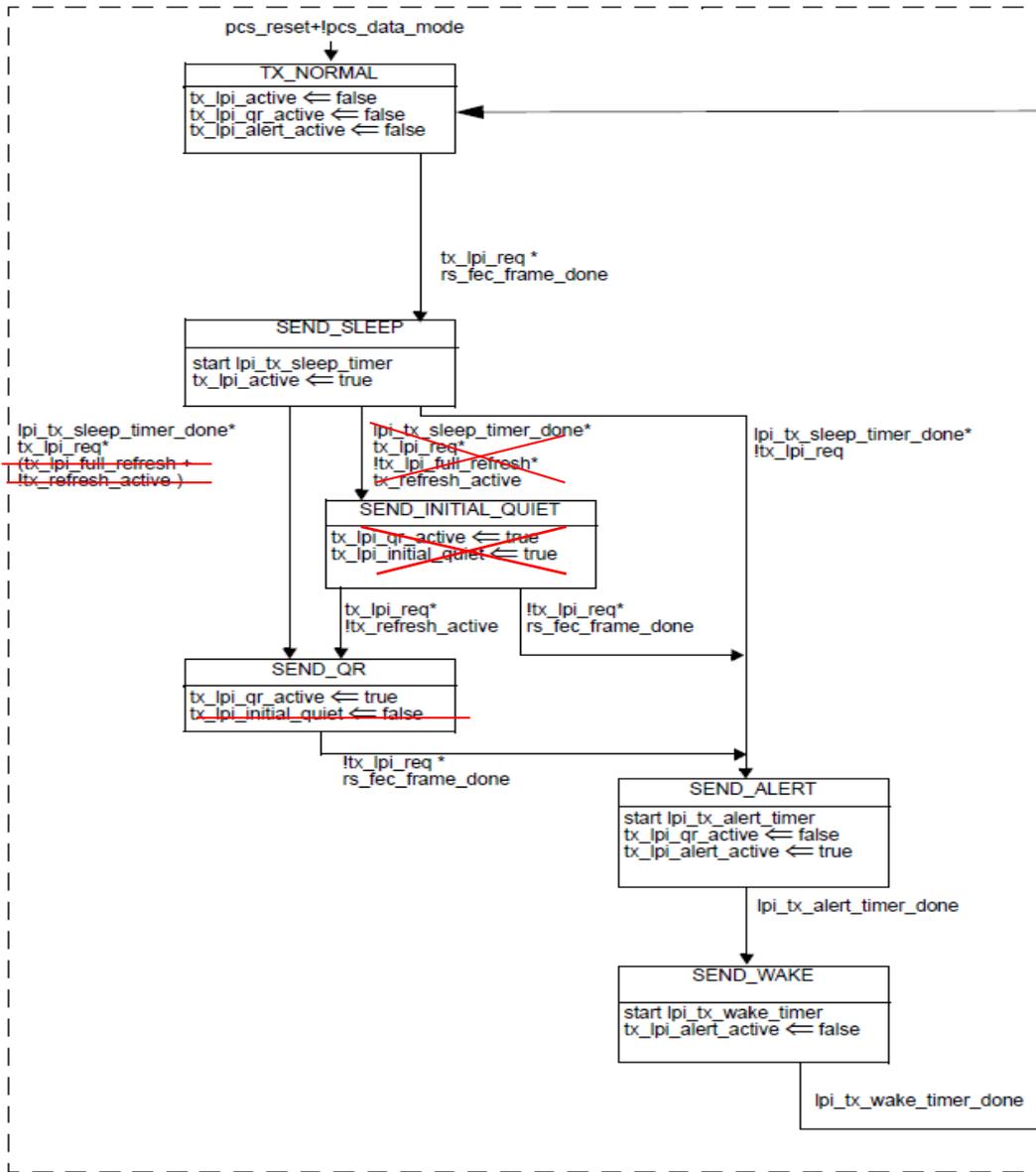
Mechanism to Prevent Partial Refresh

- Blue lines are from Benjamin_3ch_03_041619

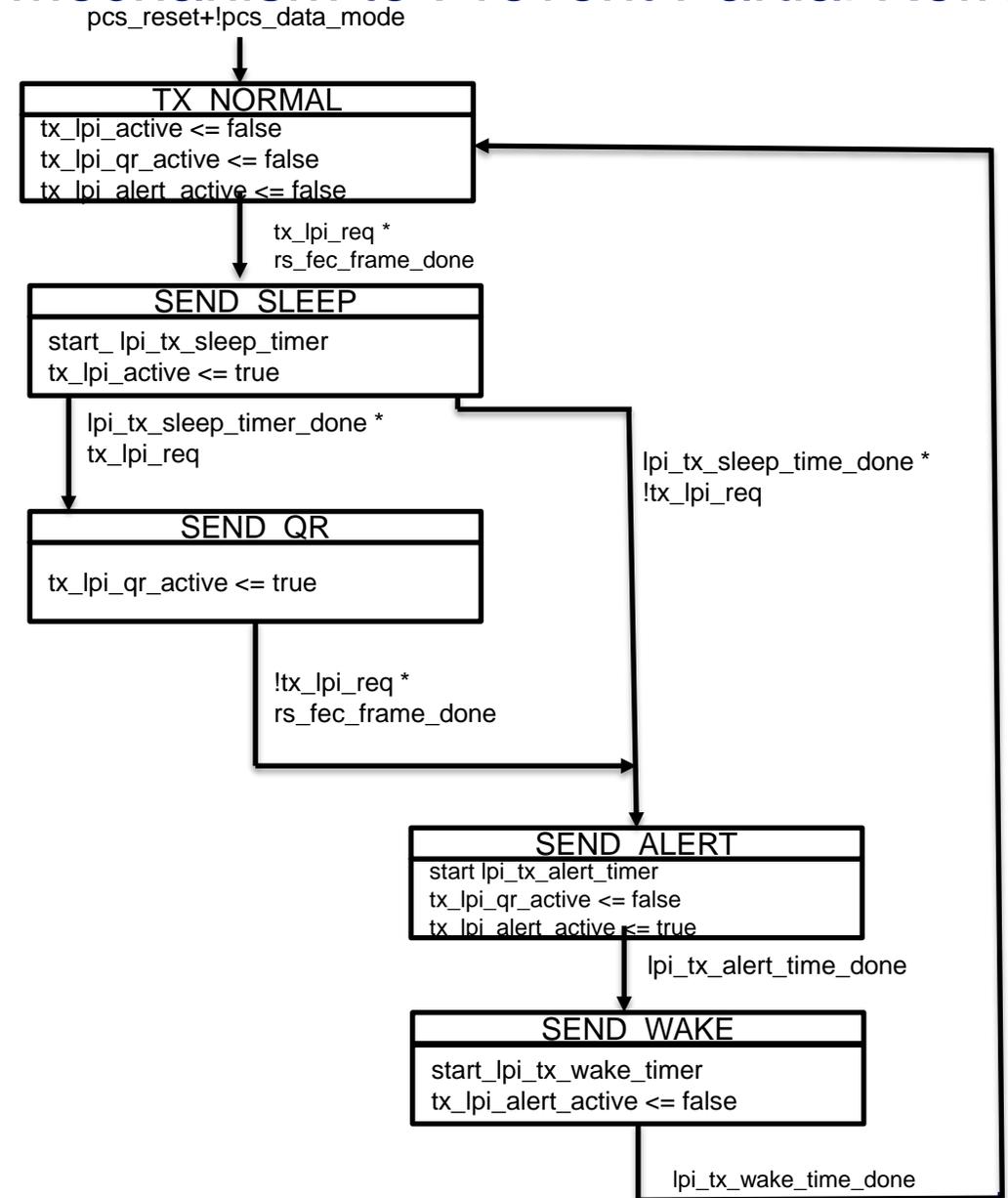


NOTE—This figure is mandatory for PHYs with the EEE capability.

Mechanism to Prevent Partial Refresh



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



Thank you.

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