

IEEE P802.3az/D1.0

Clause 55 PHY Wake Time

Updated

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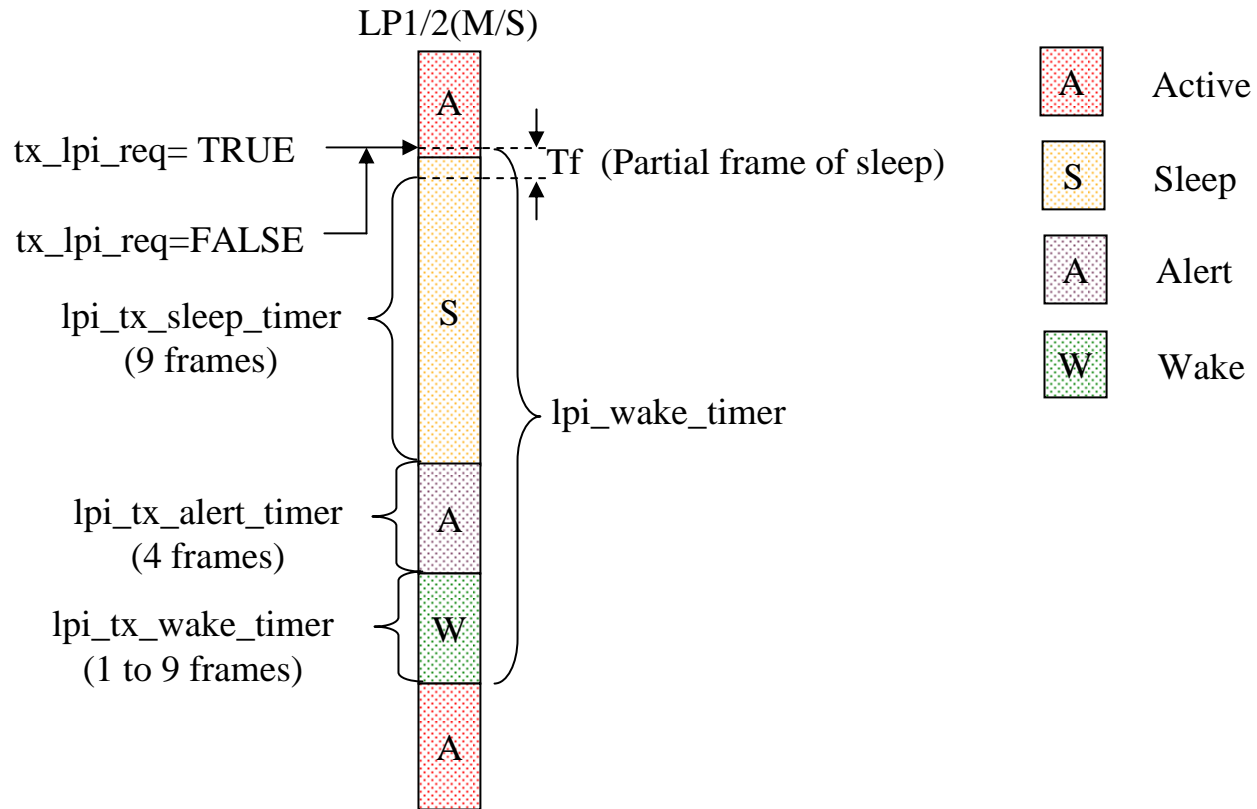


Overview

- IEEE P802.3az/D1.0 does not specify an explicit overall maximum PHY wake time value for 10GBASE-T EEE (i.e. Tw_{phy} as defined in Clause 78).
- Instead, there is an lpi_wake_time negotiated in the range of 1 to 9 frames.
- The related Tw_{phy} time and associated requirement needs to be explicit to ensure implementations meet this overall PHY wake time.
- This presentation proposes the worst-case PHY wake time with the intent of providing a requirement for inclusion in the next draft.



Worst-case Wake Time Scenario – Wake from Sleep



$$\begin{aligned}
 \text{lpi_wake_timer} &= T_f + \text{lpi_tx_sleep_timer} + \text{lpi_tx_alert_timer} + \text{lpi_tx_wake_timer} \\
 &= 1 + 9 + 4 + \text{lpi_tx_wake_timer}(\text{in frames}) \\
 &= 14 + \text{lpi_tx_wake_timer}(\text{in frames})
 \end{aligned}$$



Wake Time as a Function of Wake Period

lpi_tx_wake_timer (frames)	lpi_wake_timer	
	(frames)	(usec)
1	15	4.80
2	16	5.12
3	17	5.44
4	18	5.76
5	19	6.08
6	20	6.40
7	21	6.72
8	22	7.04
9	23	7.36

Is 320 nsec resolution needed?

Propose eliminating 2, 4, 6, 8

lpi_tx_wake_timer (*lpi_wake_period* in D1.0) is negotiated at start-up.



Proposed Changes and Additions

- In Clause 55, create timer *lpi_wake_timer* (consistent with *Tw_phy* for 1000BASE-T EEE).
- Replace *lpi_wake_period* and *lpi_wake_time* with *lpi_tx_wake_time*.
- Replace *lpi_tx_phy_wake_timer* with *lpi_tx_wake_timer*.
- Specify that *lpi_tx_wake_time* is chosen from 1, 3, 5, 7 or 9 PHY frames.
- Insert table from previous slide with reduced set of *lpi_tx_wake_time* values and associated *lpi_wake_timer* values.



Thank you



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