

# 802.3ch Communication link access latency – Table 78-4

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# Motivation

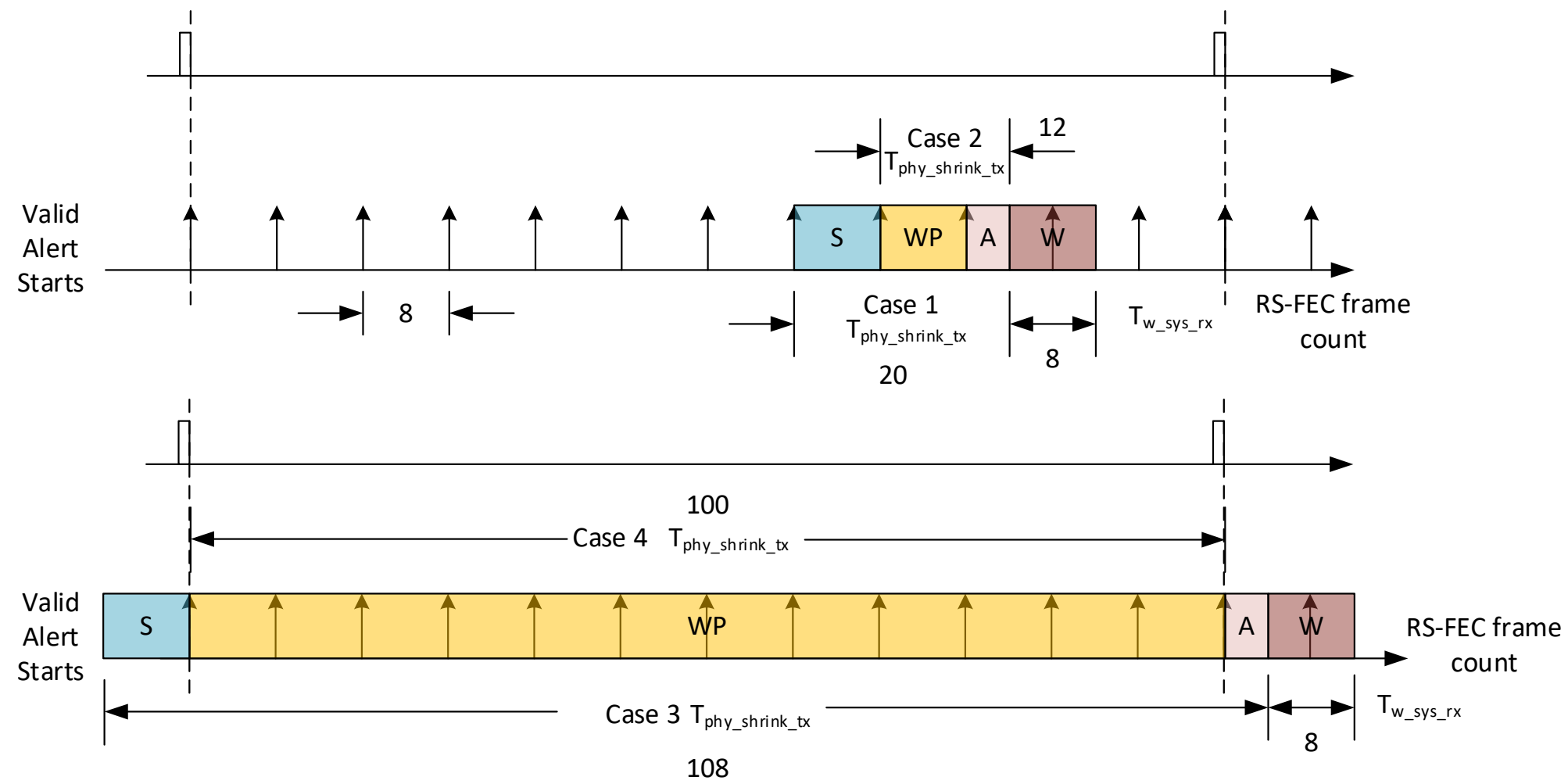
- Pete Anslow generated a comment (#22) on D2.0, Table 78-4 having blank columns.
  - I agree that the columns shouldn't be blank.
  - But only the  $T_{\text{phy\_shrink\_rx}}$  column should be zero.
  - The  $T_{\text{phy\_shrink\_tx}}$  column should be non-zero.
- Outside comment #22 scope
  - $T_{\text{w\_sys\_tx}}$  and  $T_{\text{w\_phy}}$  columns' intersection with Case-3 and Case-4 should be different
- Justification follows.

## Key equations and parameters

- The LPI latency pattern is the same as for 2.5G/5G/10G
- $T_{w\_sys\_rx} = T_{phy\_wake}$  (already in D2.0)
- $T_{phy\_shrink\_rx} = 0$ . Received Wake length on the MDI is the same as the received length on the xMII.
- From Figure 78-5 – LPI timing parameters ...
  - $T_{w\_sys\_tx} = T_{w\_sys\_rx} + T_{phy\_shrink\_tx} + T_{phy\_shrink\_rx}$
  - $T_{w\_phy} = T_{phy\_wake} + T_{phy\_shrink\_tx}$
  - $T_{w\_sys\_tx} = T_{w\_phy}$

# Graphical measurement of Table 78-4 LPI timing parameters

- Use Figures 149-13 and 149-14.



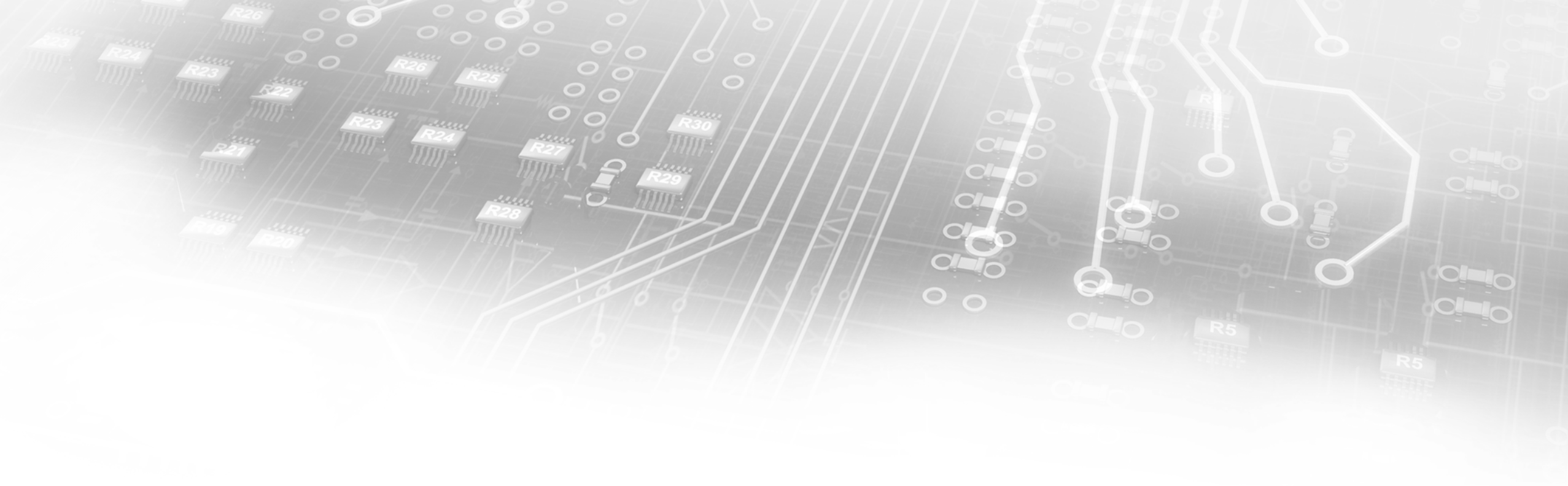
# Latencies in units of RS-FEC frame counts

- Use below to generate LPI latencies

<b>Setup</b>				<b>Sleep</b>	8	(Frames)
	<b>10</b>	<b>5</b>	<b>2.5</b>	<b>Alert</b>	4	(Frames)
<b>Frame (us)</b>	0.32	0.64	1.28	<b>Wake</b>	8	(Frames)
				<b>Wake_period</b>	8	(Frames)
				<b>QR</b>	96	(Frames)
<b><u>Latencies (frames)</u></b>						
<b>Data Rate</b>	<b>Case</b>	$T_{w\_sys\_tx}$	$T_{w\_phy}$	$T_{phy\_shrink\_tx}$	$T_{phy\_shrink\_rx}$	$T_{w\_sys\_rx}$
Normalized	Case 1	28	28	20	0	8
	Case 2	20	20	12	0	8
	Case 3	116	116	108	0	8
	Case 4	108	108	100	0	8

# Latencies in microseconds

<b>Latencies (us)</b>		<b>Table 78-4</b>				
<b>Data Rate</b>	<b>Case</b>	<b>T<sub>w_sys_tx</sub></b>	<b>T<sub>w_phy</sub></b>	<b>T<sub>phy_shrink_tx</sub></b>	<b>T<sub>phy_shrink_rx</sub></b>	<b>T<sub>w_sys_rx</sub></b>
2.5	Case 1	35.84	35.84	25.6	0	10.24
2.5	Case 2	25.6	25.6	15.36	0	10.24
2.5	Case 3	148.48	148.48	138.24	0	10.24
2.5	Case 4	138.24	138.24	128	0	10.24
<b>Data Rate</b>	<b>Case</b>	<b>T<sub>w_sys_tx</sub></b>	<b>T<sub>w_phy</sub></b>	<b>T<sub>phy_shrink_tx</sub></b>	<b>T<sub>phy_shrink_rx</sub></b>	<b>T<sub>w_sys_rx</sub></b>
5	Case 1	17.92	17.92	12.8	0	5.12
5	Case 2	12.8	12.8	7.68	0	5.12
5	Case 3	74.24	74.24	69.12	0	5.12
5	Case 4	69.12	69.12	64	0	5.12
<b>Data Rate</b>	<b>Case</b>	<b>T<sub>w_sys_tx</sub></b>	<b>T<sub>w_phy</sub></b>	<b>T<sub>phy_shrink_tx</sub></b>	<b>T<sub>phy_shrink_rx</sub></b>	<b>T<sub>w_sys_rx</sub></b>
10	Case 1	8.96	8.96	6.4	0	2.56
10	Case 2	6.4	6.4	3.84	0	2.56
10	Case 3	37.12	37.12	34.56	0	2.56
10	Case 4	34.56	34.56	32	0	2.56



# THANK YOU

