

Clarification on Partial Frames and LPI

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Partial Frame Coupling

- Partial frames, RS frames, superframes, quiet, refresh, alert windows etc are tightly coupled to each other
- Draft 1.2 is accurate and complete on these details, but is written in a way that is hard to follow and may cause interoperability issues if misinterpreted.
- Following are additional text, tables and figure to provide more clarity
- There are no technical changes in the additional information except to fix a small error shown in slide 10.
- Actual text that should go into the standard are in blue

Discussion of training frame

- The training frame / training sequence (a PMA function) is mentioned throughout the PCS section and defined in 149.3.4.1 but never referenced in 149.4.2.4 where the info field is defined.
- Page 136 line 19. Add the following text

The InfoField is embedded in the training frame as described in 149.3.4.1

Loose terminology

- Training frame / training sequence / training pattern are used very loosely and interchangeably. Propose the following interpretation
 - During training, training frames are exchanged
 - A training sequence is a series of training frames
 - We will not use the term training pattern
- Following slide describes list of changes

Loose terminology Changes

- Page 68 line 32 change training sequences to training sequence
- Page 96 line 27 change training sequence to training frame
- Page 97 line 1 change training pattern to training sequence
- Page 97 line 2 change training sequence to training frames
- Page 98 line 28 change training pattern to training sequence
- Page 98 line 30 change training signal to training frame

Establishing relationship between partial frame, RS Frame, Superframe, PFC24, and tx_rsfc

- 149.3.4.1 defines the partial frame and its relationship to the training frame. The training frame's relationship to other items are scattered throughout the document.
- tx_rsfc is not rigorously defined but used in 149.3.5.1
- Following slide shows some clarifying text to put everything in one place

149.3.4.1 A figure is worth a thousand words

- Page 98 line 35 – add the following text

The timing relationship among training frame, partial frame, RS frame, superframe, PFC24, and tx_rsfc are shown in Figure 149-XXX.

- Page 98 line 41 – add the following figure

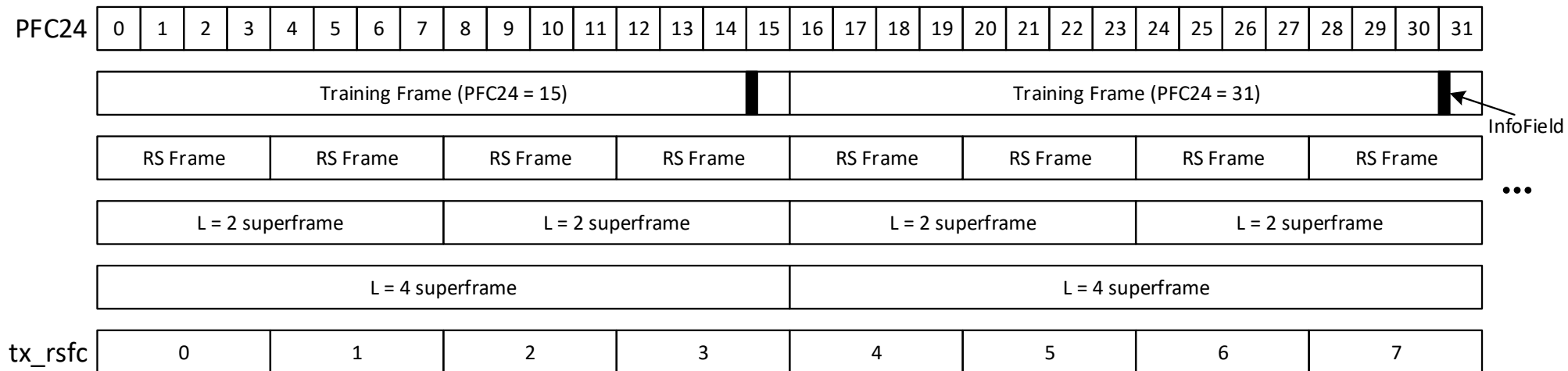


Figure 149-XXX Timing relationship to PFC24

Clarification of LPI elements wrt tx_rsfc and partial frames

- The term RS-FEC frame periods in 149.3.5 accurately describes the relative timing among the LPI elements (quiet, refresh, offset, etc) but does not clearly describe the absolute timing relationship between these elements and partial frames.
- Following slides show some clarification

149.3.5 Changes

- Insert the tx_rsfc labels in Figure 149-12 to clarify what the numbers mean

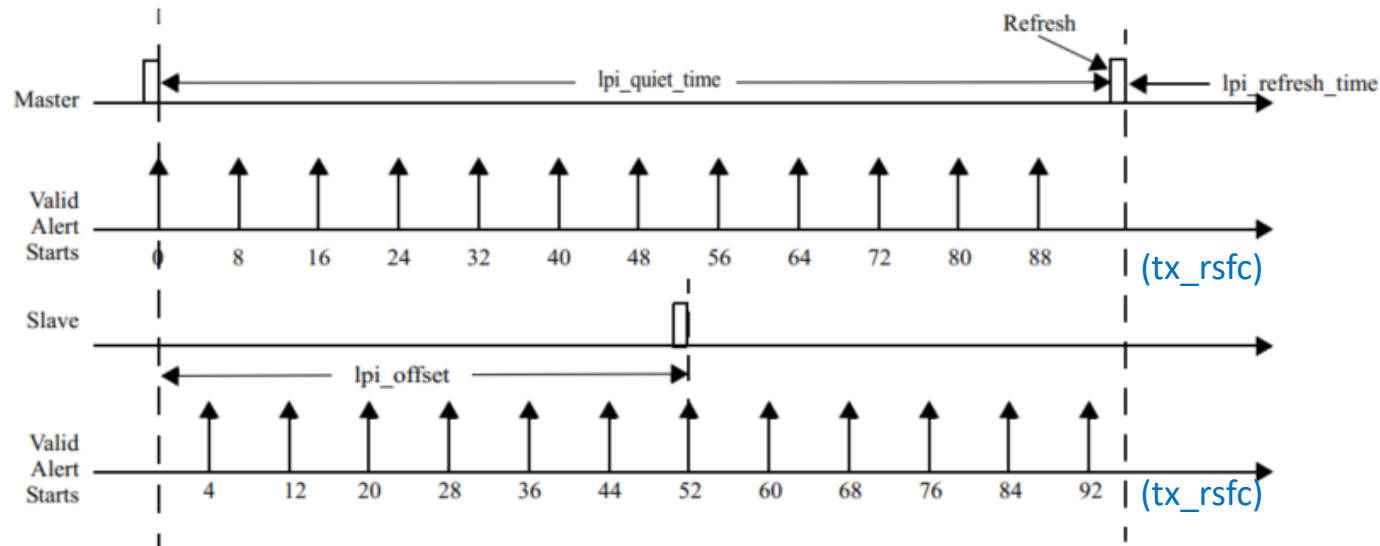


Figure 149-12—Timing periods for LPI signals

Defining RS-FEC frame count and tx_rsfc

- RS-FEC frame count and tx_rsfc are referring to the same thing. Need to explicitly state this. Also RS-FEC frame count not defined quite correctly.
- Page 99 line 50 insert ... RS-FEC frame count (tx_rsfc)
- Page 99 line 52 change **RS-FEC frame count = (PFC24 / 4) mod 96** to
RS-FEC frame count = tx_rsfc = integer(PFC24 / 4) mod 96
- Page 100 line 13 change **the transmitted PHY frames (tx_rsfc)** to
tx_rsfc

LPI Synchronization Parameters

- Consolidate all parameter values in one table. Currently it is scattered in the text.
- Insert table before Table 149-4

Table 149-XXX LPI Parameters

Parameter	RS-FEC Frame Time
alert_period	8
lpi_offset	52
lpi_qr_time	96
lpi_quiet_time	95
lpi_refresh_time	1

Delete parameter references in text and only reference the table

- Page 99 line 11: Insert after first sentence the following sentence:
The PHY shall implement the LPI parameters as shown in Table 149-XXX.
- Page 99 line 12: Delete , equal to 95 RS-FEC frame periods
- Page 99 line 14: Delete , equal to one RS-FEC frame period
- Page 99 line 16: Delete , equal to 96 RS-FEC frame periods
- Page 99 line 19: Delete (52 RS-FEC frame periods)
- Page 100 line 1: Change 52 RS-FEC frames to lpi_offset
- Page 100 line 10: Delete = 4 PHY frames

Clarification PFC24 behavior after training is complete

- The generation of tx_rsfc is dependent on PFC24 incrementing indefinitely after training is complete. Need to clarify that this is the case in 149.4.2.4.3.
- Page 137 line 19. Insert the following new paragraph

PFC24 continues to run uninterrupted for the duration of the link in order to properly generate tx_rsfc in 149.3.5.1. The resolution of PFC24 is large enough that it does not rollover during the allotted training time. However, it will rollover if allowed to run indefinitely. PFC24 is defined to rollover to 0 after it reaches 16776959.

NOTE: One possible implementation is to implement PFC24 as a mod 384 counter for the purposes of generating tx_rsfc.

Summary of changes

- Changes to implement are in slides 3, 5, 7, 9, 10, 11, 12, 13

THANK YOU