USB4 1.0 ENGINEERING CHANGE NOTICE FORM

Title: Training Error Clarification
Applied to: USB4 Specification Version 1.0

Brief description of the functional changes:
Changed the description of the Training Error to be more specific to training and retraining after CLx states.

Benefits as a result of the changes:
Usage of the Training Error bit will give a better indication since, when entering Training after CLd, it will almost always takes more than 500us.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
None

An analysis of the hardware implications:
None

An analysis of the software implications:
None

An analysis of the compliance testing implications:
None

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Actual Change

(a). Table 4-38 Error Cases and Impact on Logical Layer, Page 177

From Text:

Timeout Error (TE)	Adapter did not transition from Training state to CL0 state within tTrainingError after achieving Symbol alignment.	Go to Training.LOCK1 sub-state.	An Adapter shall set the *TE* bit in the *Logical Layer Errors* field to 1b. If the *TE* bit in the *Logical Layer Errors Enable* field is 1b, the Router shall send a Notification Packet with Event Code = ERR_LINK to the Connection Manager (see Section 6.5). If the *TE* bit in the *Logical Layer Errors Enable* field is 0b, the Router shall not send a Notification Packet.

To Text:

Timeout Error (TE)	Adapter entered Training state from either CL0, CL1, or CL2 state and did not transition from Training state to CL0 state within tTrainingError after achieving Symbol alignment sending the first SLOS1.	Go to Training.LOCK1 sub-state.	An Adapter shall set the *TE* bit in the *Logical Layer Errors* field to 1b. If the *TE* bit in the *Logical Layer Errors Enable* field is 1b, the Router shall send a Notification Packet with Event Code = ERR_LINK to the Connection Manager (see Section 6.5). If the *TE* bit in the *Logical Layer Errors Enable* field is 0b, the Router shall not send a Notification Packet.

(b). Table 4-44 Logical Layer Timing Parameters, Page 190

From Text:

tTrainingError	The amount of time before generating a Timeout Error while waiting for transition to CL0 after achieving Symbol alignment.	--	500	µs

To Text:

tTrainingError	The amount of time before generating a Timeout Error while waiting for transition to CL0 after achieving Symbol alignment. The time an Adapter has to transition from Training state to CL0 state before a Timeout Error is generated. The time is measured from when the Adapter sends the first SLOS1 to when it transitions to CL0 state.	--	500	µs