

USB 3.2 ENGINEERING CHANGE NOTICE

Title: tPollingSCDLFPSTimeout Timer Definition Update Applied to: USB 3.2 R1.0 Sep. 22, 2017

Brief description of the functional changes proposed:

There are many known legacy Gen1 devices which are not compliant to spec. These devices will not transition to polling.RXEQ unless the link partner will transition to polling.RXEQ first ("faulty devices"). There is already an ECN in place to accommodate this from Host perspective. This ECN is intended for Re-timers to accommodate these faulty devices when the Host also implements the corresponding ECN.

This ECN implements a change to the definition of the tPollingSCDLFPSTimeout timer. The ECN update clarifies the operation of the tPollingSCDLFPSTimeout timer to be consistent with hub DFP and device UFP.

Benefits as a result of the proposed changes:

Re-timers that implement this ECR will be able to interop with the faulty devices when the corresponding ECR is implemented in the Host.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:

1. No impact to USB 3.0 ecosystem.
2. No impact to any early USB3.1 implementation.

An analysis of the hardware implications:

Any new Re-timer will need to comply with this ECN.

An analysis of the software implications:

None

An analysis of the compliance testing implications:

Compliance testing will be augmented to accommodate this change.

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Changes made ...

(a). From Text : Section E.3.4.1.1 Polling.SpeedDetect Requirements

- The re-timer shall implement a tPollingSCDLFPSTimeout timer to monitor the absence of LFPS signal at both ports after the completion of SuperSpeed Polling.LFPS handshake.

(a). To Text :Section E.3.4.1.1 Polling.SpeedDetect Requirements

- The re-timer shall implement a tPollingSCDLFPSTimeout timer at both ports to monitor the absence of LFPS signal at both ports after the completion of SuperSpeed Polling.LFPS handshake at its receivers.
- The re-timer shall disable the tPollingSCDLFPSTimeout timer upon detecting successful SCD2 handshake.

(b). From Text : Section E.3.4.1.2 Exit from Polling.SpeedDetect

- The re-timer shall transition to Polling.RxEQ for SS operation if the following two conditions are met.
 - Re-timer successfully observed on each port that at least four consecutive Polling.LFPS bursts are transmitted after receiving one.
 - Upon timeout of the tPollingSCDLFPSTimeout timer.

(b). To Text :Section E.3.4.1.2 Exit from Polling.SpeedDetect

- The re-timer shall transition to Polling.RxEQ for SS operation if the following two conditions are met.
 - Re-timer successfully observed on each port that at least four consecutive Polling.LFPS bursts are transmitted after receiving one.
 - Upon timeout of the tPollingSCDLFPSTimeout timer on either one of the ports.