

USB Type-C ENGINEERING CHANGE NOTICE

Title: USB 2.0 and SS Termination Clarifications for USB4™ and AM UFPs

Applied to: USB Type-C® Specification Release 2.1, May 2021

Brief description of the functional changes proposed:

Adds clarification to the spec on when to expose USB 2.0 and SuperSpeed USB terminations for USB4 and Alternate Mode UFPs.

Benefits as a result of the proposed changes:

Provides clarity to implementers on when to expose USB 2.0 and SuperSpeed USB terminations for USB4 and Alternate Mode products.

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

No impact suspected new products that follow these requirements should still work with existing hosts.

An analysis of the hardware implications:

Implementation specific HW or FW may have to be updated.

An analysis of the software implications:

No impact to SW

An analysis of the compliance testing implications:

Compliance would have to test for USB superspeed termination exposure from USB4 UFPs or Alt Mode UFPs when connected to DFPs.

USB Type-C ENGINEERING CHANGE NOTICE

Actual Change Requested

(a). Section 5.4.1

From Text:

Once the initial data roles are established, the [USB4](#) DFP may immediately proceed to train the link for [USB3.2](#). If a UFP is [USB4](#) capable, it shall hold off exposing SuperSpeed USB terminations until the completion of the [USB4](#) discovery and entry process or [tUSB4Timeout](#). Once the [USB4](#) discovery and entry process has completed, the UFP will enable SuperSpeed USB device terminations either via the [USB4](#) SuperSpeed USB tunnel or natively depending on whether the completed port connection is [USB4](#) or [USB 3.2](#), respectively.

To Text:

Once the initial data roles are established, the [USB4](#) DFP may immediately proceed to train the link for [USB3.2](#). If a UFP is [USB4](#) capable, it shall hold off exposing [USB 2.0 speed identification \(Section 7.1.5 of the USB 2.0 specification\)](#) and [USB3.2SuperSpeed receiver](#) terminations until ~~the completion of thereceipt of USB4 discovery and entry process~~an Enter USB message, completing entry (including any pin reassignment) into an Alternate Mode, or ~~the tUSB4Timeout has expired~~. Once the [USB4](#) discovery and entry process has completed, the UFP will enable SuperSpeed USB device terminations either via the [USB4](#) SuperSpeed USB tunnel or natively depending on whether the completed port connection is [USB4](#) or [USB 3.2](#), respectively.

Clean version:

Once the initial data roles are established, the [USB4](#) DFP may immediately proceed to train the link for [USB3.2](#). If a UFP is [USB4](#) capable, it shall hold off exposing [USB 2.0 speed identification \(Section 7.1.5 of the USB 2.0 specification\)](#) and [USB3.2](#) receiver terminations until receipt of an Enter_USB message, completing entry (including any pin reassignment) into an Alternate Mode, or the [tUSB4Timeout](#) has expired.

(b). Section E.2

From Text:

The ACK shall be sent after switching to the Alternate Mode has been completed by the UFP for Enter Mode and Exit Mode requests. See Section 6.4.4 in the [USB Power Delivery Specification](#).

To Text:

The ACK shall be sent after switching to the Alternate Mode has been completed by the UFP for Enter Mode and Exit Mode requests. See Section 6.4.4 in the [USB Power Delivery Specification](#). On initial connect, a UFP that reassigns pins when in its Alternate Mode shall hold off exposing USB 2.0 speed identification (USB 2.0, Section 7.1.5) and USB3.2 receiver terminations until completing entry (including any pin reassignments) into the Alternate Mode or the tAMETimeout has expired.