

USB Power Delivery ENGINEERING CHANGE NOTICE

Title: tEnterUSB Clarification

**Applied to: USB Power Delivery Specification Revision 3.0
Version 2.0**

Brief description of the functional changes proposed:
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Clarifies the starting point for the time tEnterUSB so that it aligns with the USB Type-C specification for the start of tUSB4Timeout, which states that it starts at 1) “Sink attach” or 2) “data connection is reestablished” during Data Reset process.
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| <ul style="list-style-type: none">1) PD Connection is the point where the source and the sink are attached.2) The Data_Reset_Complete message signifies that the data connection has been reestablished following a Data Reset. |
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This ECN clarifies that a DFP is required to send Enter_USB within tEnterUSB following a DR_Swap.

Sinks are recommended not to initiate any Atomic Message Sequence until the DFP has had time to send the EnterUSB message.
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Benefits as a result of the proposed changes:
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This ECN clarifies the tEnterUSB requirement.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
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No impact.

An analysis of the hardware implications:
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None

An analysis of the software implications:
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None

An analysis of the compliance testing implications:
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Clarifies the starting point of the tEnterUSB timer. Compliance tests need to take this into account.

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Actual Change Requested

(a). Section 6.4.8

From Text:

The **Enter_USB** Message **Shall** be sent by a **[USB4]** PDUSB Hub's DFP(s) or **[USB4]** PDUSB Host's DFP(s) within **tEnterUSB** following the initial power-on or a Data Reset to enter **[USB4]** operation.

The **Enter_USB** Message **May** be sent by a PDUSB Hub's DFP(s) or PDUSB Host's DFP(s) within **tEnterUSB** following the initial power-on or a Data Reset to enter **[USB 3.2]** or **[USB 2.0]** operation.

To Text:

The **Enter_USB** Message **Shall** be sent by a **[USB4]** PDUSB Hub's DFP(s) or **[USB4]** PDUSB Host's DFP(s) within **tEnterUSB** following **a PD Connection** or a **after** Data Reset to enter **[USB4]** operation **is completed or a after DR Swap is completed**.

The **Enter_USB** Message **May** be sent by a PDUSB Hub's DFP(s) or PDUSB Host's DFP(s) within **tEnterUSB** following **a PD Connection** or **after** a Data Reset to enter **[USB 3.2]** or **[USB 2.0]** operation **is completed or after a DR Swap is completed**.

(b). Section 6.6.20

From Text:

The DFP **Shall** send the **Enter_USB** Message within **tEnterUSB** of either:

- The last bit of the **GoodCRC** acknowledging the **Accept** Message in response to the **Data_Reset** Message or
- Initial power-on.

Failure to meet this timeout parameter may result in the ports not transitioning into **[USB4]** operation.

To Text:

The DFP **Shall** send the **Enter_USB** Message within **tEnterUSB** of either:

- The last bit of the **GoodCRC** acknowledging the **Data_Reset_Complete** Message in response to the **Data_Reset** Message or
- **A PD Connection, specifically the last bit of the GoodCRC acknowledging the Source_Capabilities Message after the initial entry into the PE_SRC_Send_Capabilities state or**
- **The last bit of the GoodCRC acknowledging the Accept Message in response to the DR_Swap Message**

Failure **by the DFP** to meet this timeout parameter may result in the ports not transitioning into **[USB4]** operation. **Any AMS initiated by the UFP prior to receiving the Enter_USB Message will delay reception of the Enter_USB**

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Message and *[USB4]* operation, therefore a USB4-capable UFP ***Should Not*** initiate any AMS until the DFP has been given time to send the ***Enter_USB*** Message.