

USB PD CTS ENGINEERING CHANGE NOTICE FORM

NOTICE: Any Company or Companies submitting a USB Power Delivery ECR proposal must be one of the following: a Promoter or Contributor of the USB 3.0 and 2.0 Specifications who have completed the USB Power Delivery addendum. If a group of Companies is submitting an ECR proposal, each company must be either a Promoter or Contributor of the USB 3.0 and 2.0 Specifications who have completed the USB Power Delivery addendum.

SPECIFICATION REVISIONS AND ADDENDA: At any point in time, there shall only be one current version of the USB PD CTS, termed the production version. At the same time, there may also be proposed revisions to the specification's design which are not yet approved and shall be held confidential as deemed necessary by the USB 3.0 and USB 2.0 Promoters and within the Group of Working Committee(s).

PROCEDURES FOR SUBMITTING PROPOSALS: Both members of the USB Implementers Forum as a whole and members of the USB 3.0 and USB 2.0 Promoters may submit requests to revise the USB PD CTS Specification. Such a request may be rejected or may result in a USB PD Engineering Change Notice (ECN), which is the official way USB specifications may be changed.

FORMAT OF PROPOSAL: The originator of a request to alter the USB PD CTS Specification may do so by posting this to the USB Power Delivery Compliance working group for review. Once the proposal has been reviewed by the working group it will be passed to the USB 3.0 and 2.0 Promoters for approval to publish.

RESUBMISSION AND APPEAL: The originator of a request that was not approved can redraft the original request. Rewritten proposal will be treated as a new proposal and will be evaluated using the procedures described above. The originator of a request that was not approved can also submit an appeal to the USB 3.0 and 2.0 Promoters. The appeal must be made in writing and addressed to the Secretary of the USB Implementers Forum.

ABOUT THE ENGINEERING CHANGE REQUEST FORM:

The Purpose of this Engineering Change Request Form is to expedite the review process of the proposal by providing explanations, background information, and examples of the proposed changes at a high level. This form serves as an executive summary to the actual proposal.

STEPS ON HOW TO SUBMIT A USB PD ENGINEERING CHANGE REQUEST:

1. Please fill out the Engineering Change Request Form on the following pages completely:
 - a) Detail the names and contact details for each of the ECR contributors
 - b) Update the ECR Title
 - c) Give a minimum of 2-3 sentences for each description on the form outlining the background to the ECR
2. For each section/table/figure to be updated:
 - a) Detail the section number, starting page and figure/table number to be updated as appropriate.
 - b) Detail existing text under "From Text"
 - c) Detail changed text under "To Text"
3. Save the file as "USB PD CTS 1.0 R 1" followed by the ECR Title as per step 1.b)
4. Post the ECR in the USB PD CTS Documents section under "ECR | New ECRs".
 - a) This ECR will then be reviewed by the Power Delivery Compliance Working Group.
 - b) Revisions to the ECR originating from the review should be submitted as document revision of the original ECR using "Add new document".

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Country: _____ Zip/Postal Code: _____

Phone: _____ FAX: _____

Name: _____ Email: _____

Company: _____ Mailstop: _____

Address: _____

City: _____ State/Province: _____

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USB PD CTS ENGINEERING CHANGE NOTICE FORM

Title: tEnterUSBWait check for USB4 DFP.

Applied to: USB PD CTS Specification Version 1.4 Revision 5

Brief description of the functional changes proposed:
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Based on approved ECR in USB PD base spec(USB PD R3.1 V2.0 ECR Enter USB.docx), this ECR adds new test case to ensure that UUT as a USB4 DFP does not send Enter_USB again within tEnterUSBWait after receiving Wait to Enter_USB.
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Benefits as a result of the proposed changes:
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Aligns with USB PD base spec changes.

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

An analysis of the hardware implications:
--

No impact

An analysis of the software implications:
--

No impact

An analysis of the compliance testing implications:
--

Compliance testers will have to be updated to adhere to new changes in USB PD base spec

An analysis of the Vendor Info File (VIF) implications:
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NA

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Actual Change Requested

New Text:

TEST.PD.USB4.EUSB.5 –tEnterUSBWait check for USB4 DFP

Description: The UUT as USB4 DFP Shall wait *tEnterUSBWait* after receiving the *Wait* Message to *Enter_USB* message before sending another *Enter_USB* Message.

Test Specific Tester Behavior:

The Tester emulates USB4 capable UFP, PD Peripheral device

- The Tester emulates USB4 Gen3 passive cable. Highest Speed USB4Gen3, Current – 3A, V_{BUS} Max-20V, Cable Latency -0001b, SOP' Controller Present=1.
- The Tester always accepts DR_SWAP_to_UFP and rejects DR_Swap_to_DFP
- The tester always accepts the Vconn_Swap
- The Tester always rejects *PR_Swap* COMMON.PROC.PD.5
- The Tester always provides ACK response with below settings for *Discover Identity* Command as in COMMON.PROC.PD.7.
 - o On the SOP'
 - ✦ ID header VDO-> Product Type UFP: Passive Cable, Connector Type: USB TypeC plug, Modal operation supported = No, USB VendorID= Tester Vendor ID. All other values are 0
 - ✦ Passive Cable VDO-> Connector: USB TypeC, Max Current 3A, Max Voltage=20V, Max Speed= USB4 Gen3. Cable termination = 00b. Cable latency=0001b, remaining fields are 0
 - o On the SOP
 - ✦ ID header VDO->Product Type UFP: PDUSB Peripheral, Connector Type: USB TypeC Receptacle
 - ✦ UFP VDO->Device capability: USB4 Device capable, Highest Speed: USB4 Gen3
- The Tester always provides NAK response for *Discover SVIDs* COMMON.PROC.PD.8

Test Conditions:

If USB4_DFP_Supported is set to Yes in the vendor file, this test is applicable

	<i>Consumer Only, C/P</i>	<i>Provider Only</i>	<i>DRP, P/C</i>
<i>Rev3ChkdSrc</i>		✓	✓
<i>Rev3ChkdSnk</i>	✓		

Test Procedures:

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1. There are two possible bring-up procedures
 - a. For Provider Only, DRP, P/C, bring-up the UUT with bring-up procedure COMMON.PROC.BU.1.
 - b. For Consumer Only, C/P bring-up the UUT with be UUT with COMMON.PROC.BU.2 and perform below steps
 - i. The Tester sends *DR_Swap* Message to bring the UUT as DFP. The Tester checks the response. [TEST.PD.USB4.EUSB.5#1]
 - a. If the UUT responds with a *Wait* Message and the Tester resends *DR_Swap* every *tDRSwapWait* + 15ms for 10 times. The check fails and the Test ends here if the Tester has resent *DR_Swap* for 10 times.
 - b. The check fails if the UUT not accepted the *DR_Swap*, the Test ends here.
2. If the Tester receives the *Enter_USB* Message on SOP', the Tester performs the below checks.
 - a. Verify the USB mode on EUDO is set to USB4 (010b) [TEST.PD.USB4.EUSB.5#2]
 - b. Verifies the reserved fields on EUDO (b31, b27,b24,b12-0) are set to 0. [TEST.PD.USB4.EUSB.5#3]
 - c. The Tester sends the *Accept* response on SOP'
3. The Tester waits for *tUSB4Timeout* (1000mS). The test fails if the tester doesn't receive the *Enter_USB* on SOP. The *tUSB4Timeout* is measured from sink(tester) attach for Provider, DRP, P/C. For C, C/P it is measured from last bit of *GoodCRC* acknowledging *Accept* response for the *DR_Swap* message. [TEST.PD. USB4.EUSB.5#4]
4. If the Tester receives the *Enter_USB* Message on SOP, the Tester responds with *Wait* Message.
- 5.The Tester checks, UUT does not send another *Enter_USB* message again within *tEnterUSBWait* min time after sending the *EOP* of a *Wait* Message in response to first *Enter_USB* Message. The check fails if the UUT sends another *Enter_USB* message within *tEnterUSBWait* time.[TEST.PD.USB4.EUSB.5#5].