

USB PD CTS ENGINEERING CHANGE NOTIFICATION 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".

USB PD CTS ENGINEERING CHANGE NOTIFICATION FORM

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Company: Apple Mailstop: _____

Address: _____

City: _____ State/Province: _____

Country: _____ Zip/Postal Code: _____

Phone: _____ FAX: _____

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Company: _____ Mailstop: _____

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Country: _____ Zip/Postal Code: _____

Phone: _____ FAX: _____

Name: _____ Email: _____

Company: _____ Mailstop: _____

Address: _____

City: _____ State/Province: _____

Country: _____ Zip/Postal Code: _____

Phone: _____ FAX: _____

Name: _____ Email: _____

Company: _____ Mailstop: _____

Address: _____

City: _____ State/Province: _____

Country: _____ Zip/Postal Code: _____

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USB PD CTS ENGINEERING CHANGE NOTIFICATION FORM

Title: COMMON.CHECK.PD3.2 Check EPR_Mode Message
Applied to: USB PD CTS Q1, 2026 OR

Brief description of the functional changes proposed:

Data field in EPR_Mode Data Object w/ Action = Enter EPR_Mode should be checked against EPR Sink Operational PDP in Sink_Capabilities_Extended_Message instead of VIF.

Base spec definition:

Table 6.28. EPR Mode Data Object (EPRMDO)

Bit(s)	Field Name	Static	Description
31...24	Action	No	01h - Enter EPR Mode (sent by Sink only). 02h - Enter Acknowledged (sent by Source only). 03h - Enter Succeeded (sent by Source only). 04h - Enter Failed (sent by Source only). 05h - Exit EPR Mode (sent by Source/Sink). All other values are Invalid ; receiver Should Ignore this Message.
23...16	Data	No	If Action is 01h (Enter EPR Mode): 00h-FFh - EPR Sink Operational PDP (this Shall match the "EPR Sink Operational PDP" field in Sink_Capabilities_Extended_Message). If Action is 02h (Enter Acknowledged): Reserved , receiver Shall Ignore this field. If Action is 03h (Enter Succeeded): Reserved , receiver Shall Ignore this field. If Action is 04h (Enter Failed): 00h - Unknown cause of failure. 01h - Cable not EPR Capable. 02h - Source failed to become VCONN Source. 03h - EPR Capable bit not set in RDO. 04h - Source unable to enter EPR Mode . The Sink May retry entering EPR Mode after receiving this Enter Failed response. 05h - EPR Capable bit not set in PDO. All other values are Invalid ; receiver Should Ignore this field. If Action is 05h (Exit EPR Mode): Reserved , receiver Shall Ignore this field.
15...0	Reserved	Yes	Reserved , receiver Shall Ignore this field.

Benefits as a result of the proposed changes:

Data field correctly tested per the base spec definition

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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:

Tester to update the corresponding tests per the ECR updates.

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

None

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Actual Change Requested

COMMON.CHECK.PD.3.2 Check EPR_Mode Message

From Text:

COMMON.CHECK.PD3.2 Check EPR_Mode Message

Description: The Tester performs additional protocol checks to all *EPR_Mode* Messages sent by the UUT.

Check Applicability: the *EPR_Mode* Message

The Tester performs the following additional checks on all EPR Mode messages:

[COMMON.CHECK.PD3.2#1]

1. Field check for EPR Mode Data Object
 - a. Bit 31...24 (Action field) shall not be equal to 0 and shall be less than 0x06
 - b. Bit 23...16 (Data field):
 - i. Shall be set to 0 if the action field is “Enter Acknowledged” (0x02)
 - ii. Shall be set to 0 if the action field is “Enter Succeeded” (0x03)
 - iii. Shall be set to 0 if the action field is “Exit” (0x05)
 - iv. Shall be consistent with the “Snk_PDO_PDP_Rating” VIF field if action field is “Enter” (0x01)
 - v. Shall be less than 0x06 if the action field is “Enter Failed” (0x04)
 - c. Bit 15...0 Shall be set to 0.

To Text:

COMMON.CHECK.PD3.2 Check EPR_Mode Message

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[COMMON.CHECK.PD3.2#1]

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 - b. Bit 23...16 (Data field):
 - i. Shall be set to 0 if the action field is “Enter Acknowledged” (0x02)
 - ii. Shall be set to 0 if the action field is “Enter Succeeded” (0x03)
 - iii. Shall be set to 0 if the action field is “Exit” (0x05)
 - i. Shall be consistent with the “Snk EPR_Operational_PDP” VIF field if action field is “Enter” (0x01)
 - iv. Shall be less than 0x06 if the action field is “Enter Failed” (0x04)

Bit 15...0 Shall be set to 0.

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VIF Info

<https://groups.usb.org/wg/VIF/document/18783>

Snk EPR Operational PDP

The Source PDP, in units of 1 W, recommended by the manufacturer for normal Sink functionality when operating in EPR Mode.

Valid values are in the range 0 - 240.

If EPR Supported As Snk is not set to YES, then this field shall be set to 0.

*Note: this field corresponds to the **EPR Sink Operational PDP** field (byte 22) in a **Sink Capabilities Extended Data Block**. Refer to Table 6.61 in **[PowerDelivery3.2]**.*