

# USB PD CTS ENGINEERING CHANGE ~~REQUEST~~ NOTICE FORM

**NOTICE:** Any Company or Companies submitting a USB Power Delivery ~~ECR~~ ECN 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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**Title: xxxx**

**Applied to: USB PD CTS Specification Version 1.0 Revision 1**

<b>Brief description of the functional changes proposed:</b>
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Update the check on Power State Change field to the latest base spec
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<b>Benefits as a result of the proposed changes:</b>
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<b>An assessment of the impact to the existing revision and systems that currently conform to the USB specification:</b>
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<b>An analysis of the hardware implications:</b>
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<b>An analysis of the software implications:</b>
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<b>An analysis of the compliance testing implications:</b>
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<b>An analysis of the Vendor Info File (VIF) implications:</b>
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## Actual Change Requested

### New Text:

#### TEST.PD.PROT.ALL3.1 Get\_Status Response

Description: The Tester verifies that the UUT responds correctly to Get\_Status message.

Test Conditions:

	Consumer Only	Provider Only	DRP, C/P, P/C	Free Cable	VPD, Captive Cable, Si-Only eMarker
Rev3ChkdSrc		✓	✓		
Rev3UnChkdSrc		✓	✓		
Rev3ChkdSnk	✓		✓		
Rev3UnChkdSnk	✓		✓		
Rev3VcMinEnd1				✓	✓
Rev3VcMaxEnd1				✓	✓
Rev3VcMinEnd2				✓	
Rev3VcMaxEnd2				✓	

Test Procedures:

1. There are 9 possible bring-up procedures:
  - a. The UUT has VIF field PD\_Port\_Type set to Consumer Only. The Tester behaves as a Source only and it runs bring-up procedure with the UUT as a Sink COMMON.PROC.BU.2
  - b. The UUT has VIF field PD\_Port\_Type set to Consumer/Provider, each test under this section needs to be run twice, first time the Tester behaves as a Source only and it runs bring-up procedure with the UUT as a Sink COMMON.PROC.BU.2; second time the Tester behaves as a Provider/Consumer and it runs bring-up procedure with the UUT as a Source COMMON.PROC.BU.7 (Dual-Role Power bit B29 in the single PDO is set to 1b).
  - c. The UUT has VIF field PD\_Port\_Type set to Provider Only. The Tester behaves as a Sink only and it runs bring-up procedure with the UUT as a Source COMMON.PROC.BU.1.
  - d. The UUT has VIF field PD\_Port\_Type set to Provider/Consumer, each test under this section needs to be run twice, first time the Tester behaves as a Consumer/Provider and it runs bring-up procedure with the UUT as a Sink COMMON.PROC.BU.8; second time the Tester behaves as a Sink Only and it runs bring-up procedure with the UUT as a Source COMMON.PROC.BU.1 (Dual-Role Power bit B29 in the single PDO is set to 1b).
  - e. The UUT has VIF field PD\_Port\_Type set to DRP, each test under this section needs to be run twice, first time the Tester behaves as a Source only and it runs bring-up procedure with the UUT as a Sink COMMON.PROC.BU.2; second time the Tester behaves as a Sink only and it runs bring-up procedure with the UUT as a Source COMMON.PROC.BU.1 (Dual-Role Power bit B29 in the single PDO is set to 0b).
  - f. The UUT has VIF field VIF\_Product\_Type set to Cable. The Tester runs bring-up procedure with the UUT as a Cable Plug COMMON.PROC.BU.3
  - g. The UUT has VIF field VIF\_Product\_type set to Port Product and PD\_Port\_type set to eMarker. The Tester runs bring-up procedure with the UUT as a VPD COMMON.PROC.BU.10
  - h. The UUT has VIF field PD\_Port\_Type set to DRP, Consumer/Provider or Consumer only, and VIF parameter Captive\_Cable is set to YES, and VIF parameter eMarked Captive Cable is set

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- to YES\*. The Tester runs bring-up procedure with the UUT as a Sink UUT for Captive Cable Test COMMON.PROC.BU.6.
- i. The UUT has VIF field PD\_Port\_Type set to Provider/Consumer or Provider only, and VIF parameter Captive\_Cable is set to YES, and VIF parameter eMarked Captive Cable is set to YES\*. The Tester runs bring-up procedure with the UUT as a Source UUT for Captive Cable Test COMMON.PROC.BU.11.
2. If VIF field Product\_Type = Active Cable, the Tester sends a *Discover Identity* Command to the UUT, the checks fails if the UUT doesn't respond with a *Discover Identity* ACK message.  
[TEST.PD.PROT.ALL3.1#1]
3. The Tester sends a Get\_Status message to the UUT.
4. The Tester checks the response message depending on the UUT type/role:
- a. If the UUT is a Cable Plug [TEST.PD.PROT.ALL3.1#2]
- i. If the VIF field Product\_Type = Active Cable, the Tester checks that the UUT sends a Status message
- ii. Otherwise, the Tester checks that the UUT sends either Ignore or Status message
- b. If the UUT is a Source or Sink, the check fails if the UUT does not respond with either *Not\_Supported* or Status message. [TEST.PD.PROT.ALL3.1#3]
5. The Tester runs additional check for the Status message: [TEST.PD.PROT.ALL3.1#4]
- a. For the SOP SDB
- i. Present Input field: Bit 0 = 0 (Reserved)
- ii. Present Input field: ~~Bit 0 and~~ Bits 5...7 (Reserved) are 0s
- iii. If Bit 3 (Internal Power from Battery) is 0 in Present Input field, then Present Battery Input field shall be 0
- iv. Event Flags field: Bit 0 and Bits 5...7 (Reserved) are 0s
- v. Temperature Status field: Bit 0, Bits 3...7 (Reserved) are 0s
- vi. Power Status field:
1. If DUT's current port power role = Source
- a. Bit 0, Bits 6...7 (Reserved) are 0s
- b. Bit1 = 1 if one or more Src\_PDO\_Max\_Current > 3A, and emulated cable is not e-marked
- c. Bit1 = 0 if emulated cable is e-marked at 5A
- d. Bit1 = 0 if DUT has captive cable
- e. Bit1 = 0 if all SRC\_PDO\_Max\_Current <= 3A
2. If DUT's current port power role = Sink,  
Bits 0..7 are 0s
- vii. If Bit 2 (OTP event) is 1 in Event Flags field, then Temperature Status field shall be set to 11b (Over Temperature)
- viii. Power State Change:
1. bits 6..7(reserved) are 0s
2. bits 0..2: values must be less than 7
3. Bits 3..5: ~~(reserved) is 0.~~ value must be less than 4