

USB Power Delivery ENGINEERING CHANGE NOTICE

Title: Source_Info Message Clarifications

**Applied to: USB Power Delivery Specification Revision 3.2
Version 1.0**

Brief description of the functional changes proposed:
This ECN clarifies the relationship between the USB PD's <i>Port Present PDP</i> and the USB Type-C requirements for <i>Shared Port Power Available</i> . Additionally, the ECR will clarify how the USB PD <i>Port Type</i> relates to being part of a <i>Shared Capacity</i> group or not.

Benefits as a result of the proposed changes:
More clarity around these terms to ease interpretation by developers and testers.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
No intended impact as this update remains consistent with the intended use of these terms.

An analysis of the hardware implications:
No intended implications.

An analysis of the software implications:
No intended implications.

An analysis of the compliance testing implications:
This ECR is the result of some confusion discovered when definition compliance testing for shared ports. These clarifications may assist in helping to simplify testing procedures by improving consistent interpretation of the requirements for <i>Port Present PDP</i> .

USB Power Delivery ENGINEERING CHANGE NOTICE

Actual Change Requested

(a). Sections 6.4.11.1 through 6.4.11.4

From:

6.4.11.1 Port Type Field

Port Type is a static field that **shall** be used to indicate whether the amount of power the port can provide is fixed or can change dynamically.

A Guaranteed Capability Port **shall** always report its **Port Maximum PDP** equal to its **Port Present PDP** when the correct cable is used (e.g., 5A for Sources with PDPs greater than 60W or EPR Capable for EPR capable Sources). A Managed Capability Port is not required to have its **Port Maximum PDP** equal to its **Port Present PDP**.

6.4.11.2 Port Maximum PDP Field

Port Maximum PDP is a static field that **shall** indicate the maximum amount of power the Port is designed to deliver. A Guaranteed Capability Port (as indicated by the Port Type field being set to '1') **shall** always be capable of supplying this amount of power. A Managed Capability Port (as indicated by the Port Type field being set to '0') **shall** be able to offer this amount of power at some time.

The **Port Maximum PDP** **shall** be the same as the larger of the Source PDP Rating and the EPR Source PDP Rating in the **Source_Capabilities_Extended** Message.

6.4.11.3 Port Present PDP Field

The **Port Present PDP** is a Static field when the **Port Type** is Guaranteed Capability and is dynamic when the **Port Type** field is Managed Capability. It **shall** indicate the amount of power the port is presently capable of supplying. A Guaranteed Capability port **shall** always set its **Port Present PDP** to be the same as its **Port Maximum PDP** except when limited by the cable's capabilities. A Managed Capability Port **shall** set its **Port Present PDP** to the amount of power it has available to offer at this time which might be limited by the cable's capabilities.

6.4.11.4 Port Reported PDP Field

The **Port Reported PDP** field **shall** track the amount of power the Port is offering in its **Source_Capabilities** Message or **EPR_Source_Capabilities** Message. The **Port Reported PDP** field **may** be dynamic or static depending on the Port's other characteristics such as Managed/Guaranteed Capability, SPR/EPR mode, its power policy etc.

Note: The **Port Reported PDP** field is computed as the largest of the products of the Voltage times current of the fixed PDOs returned in the **Source_Capabilities** Message or **EPR_Source_Capabilities** Messages.

To:

6.4.11.1 Port Type Field

Port Type is a static field that **shall** be used to indicate whether the amount of power the port can provide is fixed or can change dynamically.

USB Power Delivery ENGINEERING CHANGE NOTICE

For Ports that are part of a Shared Capacity Group, the **Port Type** field **Shall** be set to Managed Capability Port.

For Ports not part of a Shared Capacity Group, the **Port Type** field **May** be set to either Managed Capability Port or Guaranteed Capability Port.

6.4.11.2 Port Maximum PDP Field

Port Maximum PDP is a static field that **Shall** indicate the maximum amount of power the Port is designed to deliver. A Guaranteed Capability Port (as indicated by the Port Type field being set to '1') **Shall** always be capable of supplying this amount of power. A Managed Capability Port (as indicated by the Port Type field being set to '0') **Shall** be able to offer this amount of power at some time.

The **Port Maximum PDP** **Shall** be the same as the larger of the Source PDP Rating and the EPR Source PDP Rating in the **Source_Capabilities_Extended** Message.

6.4.11.3 Port Present PDP Field

The **Port Present PDP** field **Shall** indicate the amount of power the port is presently capable of supplying **including limitations due to cable's capabilities or abnormal operating conditions (e.g., elevated temperature, low input voltage, etc.)**.

A Guaranteed Capability port **Shall** always set its **Port Present PDP** to be the same as its **Port Maximum PDP** **or the highest possible value** when limited.

A Managed Capability Port **that is part of a Shared Capacity Group** **Shall** set its **Port Present PDP** to **Shared Port Power Available** as defined in the USB Type-C specification or to a lower value when limited.

A Managed Capability Port that is part of an Assured Capacity Group **Shall** set its **Port Present PDP** to the **Port Maximum PDP** or the highest value possible when limited.

6.4.11.4 Port Reported PDP Field

The **Port Reported PDP** field **Shall** track the amount of power the Port is offering in its **Source_Capabilities** Message or **EPR_Source_Capabilities** Message. The **Port Reported PDP** field **May** be dynamic or static depending on the Port's other characteristics such as Managed/Guaranteed Capability, SPR/EPR mode, its power policy etc.

Note: The **Port Reported PDP** field is computed as the largest of the products of the Voltage times current of the fixed PDOs returned in the **Source_Capabilities** Message or **EPR_Source_Capabilities** Messages.