

# USB Power Delivery ENGINEERING CHANGE NOTICE

**Title: Remove Section 10.2.4 (Power sharing between ports)**

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

<b>Brief description of the functional changes proposed:</b>
This ECN removes Section 10.2.4. The requirements for power sharing between ports are covered by the <b>USB Type-C</b> specification and this section isn't really needed. Additionally, the second paragraph requirement along with the <b>EPR</b> example in this section is contrary to the <b>EPR Port Present PDP</b> less than <b>Port Maximum PDP</b> power rules where higher voltage <b>are allowed</b> when <b>Port Present PDP</b> is less than 100W.

<b>Benefits as a result of the proposed changes:</b>
Remove possible conflicting requirements.

<b>An assessment of the impact to the existing revision and systems that currently conform to the USB specification:</b>
No intended impact.

<b>An analysis of the hardware implications:</b>
No intended implications.

<b>An analysis of the software implications:</b>
No intended implications.

<b>An analysis of the compliance testing implications:</b>
Some adjustments to testing might be necessary if the testing conformed to this section's requirement regarding remaining available port power as opposed to being aligned with the power rules tables.

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## Actual Change Requested

### (a). Section 10.2.4

#### From:

#### 10.2.4 Power sharing between ports

The Source power rules defined in *Section 10.2.2 “Normative Voltages and Currents”* and *Section 10.2.3 “Optional Voltages/Currents”* **shall** apply independently to each port on a system with multiple ports.

When applying the power rules to a given port, only the power rules appropriate for the remaining available PDP (i.e., the remaining available port power) at the time of the Advertisement **shall** be applied.

#### EPR Examples of power sharing

For an EPR-capable Fixed Voltage charger (per the power rules of *Table 10.12 “EPR Source Capabilities based on the Port Maximum PDP and using an EPR Capable Cable”*) with EPR-capable Sinks in EPR mode with two Managed Capability ports with a PDP rating of 140W with an overall charger capacity of 220W, the following is an example of power sharing between ports.

1. Sharing when >100W capacity is not available for both ports simultaneously after the first port contract is established.
  - a. The first shared port negotiates a Fixed Voltage contract for 28V @ 5A.
  - b. The Advertisement for the second port will be based on a PDP of 80W, therefore the highest offer that can be made is a Fixed Voltage contract for 20V @ 4A. No offers higher than 20V can be made at this remaining available power level.
2. Sharing when >100W capacity is available for both ports simultaneously after the first port contract is established.
  - a. The first shared port negotiates a Fixed Voltage contract of 28V @ 4A.
  - b. The Advertisement for the second port will be based on a PDP of 108W, therefore the highest offer that can be made is a Fixed Voltage contract for 28V @ 3.85A.

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To:

## 10.2.4 — Power sharing between ports

The Source power rules defined in *Section 10.2.2 “Normative Voltages and Currents”* and *Section 10.2.3 “Optional Voltages/Currents”* *shall* apply independently to each port on a system with multiple ports.

When applying the power rules to a given port, only the power rules appropriate for the remaining available PDP (i.e., the remaining available port power) at the time of the Advertisement *shall* be applied.

### EPR Examples of power sharing

For an EPR-capable Fixed Voltage charger (per the power rules of *Table 10.12 “EPR Source Capabilities based on the Port Maximum PDP and using an EPR Capable Cable”*) with EPR-capable Sinks in EPR mode with two Managed Capability ports with a PDP rating of 140W with an overall charger capacity of 220W, the following is an example of power sharing between ports.

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  - a. The first shared port negotiates a Fixed Voltage contract for 28V @ 5A.
  - b. The Advertisement for the second port will be based on a PDP of 80W, therefore the highest offer that can be made is a Fixed Voltage contract for 20V @ 4A. No offers higher than 20V can be made at this remaining available power level.
2. Sharing when >100W capacity is available for both ports simultaneously after the first port contract is established.
  - a. The first shared port negotiates a Fixed Voltage contract of 28V @ 4A.
  - b. The Advertisement for the second port will be based on a PDP of 108W, therefore the highest offer that can be made is a Fixed Voltage contract for 28V @ 3.85A.