

# ECN for USB Power Delivery Specification Revision 3.2

## Version 1.1, 2024-10

### Title: cSnkBulkPd Clarifications

<b>Brief description of the functional changes proposed:</b>
No functional changes are being proposed. The Sink Bulk capacitance already can exceed cSnkBulkPd per the note stating: “If more bypass capacitance than cSnkBulk max or cSnkBulkPd max is required in the device, then the device Shall incorporate some form of VBUS surge current limiting...” However section 7.2.2: “An upper bound of cSnkBulkPd Shall Not be exceeded”

<b>Benefits as a result of the proposed changes:</b>
Addresses a contradiction in the existing spec

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

<b>An analysis of the hardware implications:</b>

<b>An analysis of the software implications:</b>

<b>An analysis of the compliance testing implications:</b>

# ECN for USB Power Delivery Specification Revision 3.2

## Version 1.1, 2024-10

### Actual Change Requested

#### (a). Section 7.2.2, Page 335

##### From Text:

An upper bound of **cSnkBulkPd** **Shall Not** be exceeded so that the transient charging, or discharging, of the total bulk capacitance on VBUS can be accounted for during voltage transitions.

The Sink bulk capacitance that is within the **cSnkBulk** max or **cSnkBulkPd** max limits is allowed to change to support a newly Negotiated power level. The capacitance can be changed when the Sink enters Sink Standby or during a voltage transition or when the Sink begins to operate at the new power level.

Changing the Sink bulk capacitance **Shall Not** cause a transient current on VBUS that violates the present Contract.

##### To Text (Section 4.2.2) :

The total Sink bulk capacitance connected to VBUS Shall Not exceed **cSnkBulk** or **cSnkBulkPd** limits. The capacitance value may be changed at any time, provided the change:

- does not cause a transient current on VBUS that violates the maximum allowed current of the present Contract;
- **does not cause iSnkStdby to be exceeded during positive load transitions;**
- guarantees the rate of change of current stays below **iLoadStepRate**.

Capacitance beyond the **cSnkBulkPd** limit is permitted, provided it is isolated from VBUS through current-limiting circuitry as described in [USB3]. The Sink Shall be responsible to discharge this additional capacitance and Shall remove it in the event of a disconnect, Hard reset, FRS or Power Role Swap. **Since the additional capacitance may create a slow Vbus discharge on a disconnect, care must be taken to meet the requirements detailed in Section 4.2.8.1, and [USB-C] requirements to detect a disconnect event.**