

# USB Type-C ENGINEERING CHANGE NOTICE

**Title: Max VBUS Capacitance**

**Applied to: USB Type-C Specification Release 1.3, July 14, 2017**

<b>Brief description of the functional changes proposed:</b>
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Allow source-only ports to have higher VBUS capacitance. Require sources with $R_p$ pulled up to VBUS to limit the transient leakage current to avoid presenting an $R_d$ termination.
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<b>Benefits as a result of the proposed changes:</b>
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This relaxes VBUS limitations for sources in order to simplify implementation while ensuring other types of ports continue to limit VBUS capacitance within existing limits. This change makes the assumption that legacy USB Type-A ports limit the output current.
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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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None
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<b>An analysis of the hardware implications:</b>
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None
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<b>An analysis of the software implications:</b>
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None.
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<b>An analysis of the compliance testing implications:</b>
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USB 2.0 electrical tests need to be updated to reflect the higher allowed capacitance.
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## Actual Change Requested

### (a). Section 4.4.2, Table 4-2, Page 125

#### From Text:

VBUS Capacitance		10 $\mu$ F	Capacitance between VBUS and GND pins on receptacle when VBUS is not being sourced.
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#### To Text:

VBUS Capacitance		<del>10</del> 3000 $\mu$ F	Capacitance <u>for source-only ports</u> between VBUS and GND pins on receptacle when VBUS is not being sourced.
		10 $\mu$ F	<u>Capacitance for DRP ports between VBUS and GND pins on receptacle when VBUS is not being sourced.</u>

### (b). Section 4.11.1, Table 4-23, Page 198

#### From Text Table 4-23 caption:

Table 4-23 Sink CC Termination Requirements

#### New Text Table 4-23 caption:

Table 4-23 ~~Sink~~ CC Termination Requirements for Disabled state, ErrorRecovery state, and Unpowered Source

### (c). Section 4.11.1, Page 198

#### From Text:

Table 4-23 provides the minimum impedance value to ground on CC for a self-powered device (Sink) or a device that supports the Disabled state or **ErrorRecovery** state to be undetected by a Source.

#### To Text:

Table 4-23 provides the minimum impedance value to ground on CC for a ~~self-powered~~ device (Sink or Source) to be undetected by a Source. This shall apply for ports in or a device that supports the Disabled state or **ErrorRecovery** state. This shall also apply for sources when unpowered (for example a power brick unplugged from AC mains). ~~to be undetected by a Source.~~

### (d). Section 4.4.2, Table 4-3

#### New row:

VBUS Capacitance		10 $\mu$ F	Capacitance between VBUS and GND pins on receptacle when not in Attached.SNK.
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