USB Type-C ENGINEERING CHANGE NOTICE

Title: Rd Make Before Break

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

Brief description of the functional changes proposed:

This is a clarification of the intent of the spec.
Some implementations have been seen to have a time gap in the transition between the two implementations in such a way that the CC-voltage moves outside the voltage band that defines a connection for a long enough time to cause an unintended disconnect. This will cause an endless loop.
This is most likely for Bus-Powered Devices.

Benefits as a result of the proposed changes:

By explicitly stating that the transition between Rd implementations must be make-before-break fewer failed implementations are expected.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:

None

An analysis of the hardware implications:

None

An analysis of the software implications:

None

An analysis of the compliance testing implications:

None

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Actual Change Requested

Section 4.11 Parameter Values

From Text:
4.11.1 Termination Parameters

The Sink may find it convenient to implement Rd in multiple ways simultaneously (a wide range Rd when unpowered and a trimmed Rd when powered). Transitions between Rd implementations that do not exceed tCCDebounce shall not be interpreted as exceeding the wider Rd range. Table 4-21 provides the methods and values that shall be used for the Sink's Rd implementation.

To Text:
4.11.1 Termination Parameters

The Sink may find it convenient to implement Rd in multiple ways simultaneously (a wide range Rd when unpowered and a trimmed Rd when powered). Transitions between Rd implementations that do not exceed tCCDebounce shall not be interpreted as exceeding the wider Rd range. Transitions between Rd implementations shall not allow the voltage on the CC-line to go outside the voltage band that defines a connection. Table 4-21 provides the methods and values that shall be used for the Sink's Rd implementation.