USB Type-C ENGINEERING CHANGE NOTICE

Title: Captive Cable Charger support BC1.2
Applied to: USB Type-C Specification Release 1.0, August 11, 2014

Brief description of the functional changes proposed:
Require a charger with a captive cable advertise that it is BC1.2 capable. This changes the existing recommendation to a requirement.

Benefits as a result of the proposed changes:
Makes the behavior of a charger with a captive cable and one with a USB Type-C receptacle offer the same capabilities.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
Minimal impact to the eco-system.

An analysis of the hardware implications:
Since the only allowable use of a charge only connector is limited (see Section 3.2.1 #16), a compliant charger with a captive cable is required to have a plug with D+ and D- pins so supporting BC1.2 only adds a requirement that those existing pins are connected together with a resistance < 200 ohms.

An analysis of the software implications:
None

An analysis of the compliance testing implications:
Testing of a charger with a receptacle and one with a captive cable will be the same.

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Actual Change Requested

(a). Section 4.8.1.2
From Text:

USB-based Chargers with USB Type-C Captive Cables

- A USB-based charger with a USB Type-C captive cable that supports USB PD shall only apply power to V$_{BUS}$ when it detects a Sink is attached and shall remove power from V$_{BUS}$ when it detects the Sink is detached (vOPEN).

- A USB-based charger with a USB Type-C captive cable that does not support USB PD may supply V$_{BUS}$ at any time. It is recommended that such a charger only apply power to V$_{BUS}$ when it detects a Sink is present and remove power from V$_{BUS}$ when it detects the Sink is not present (vOPEN).

- A USB-based charger with a USB Type-C captive cable shall limit its current advertisement so as not to exceed the current capability of the cable (up to 5 A).

- A USB-based charger with a USB Type-C captive cable which is not capable of data communication shall advertise USB Type-C Current of at least 1.5 A. It is recommended that such a charger short D+ and D− together with a resistance less than 200 ohms.

- The voltage as measured at the plug of a USB-based charger with a USB Type-C captive cable may be up to 0.75 × I / 3 V (0 < I ≤ 3 A), or 0.75 × I / 5 V (0 < I ≤ 5 A) lower than the standard tolerance range for the chosen voltage, where I is the actual current being drawn.

To Text:

USB-based Chargers with USB Type-C Captive Cables

- A USB-based charger with a USB Type-C captive cable that supports USB PD shall only apply power to V$_{BUS}$ when it detects a Sink is attached and shall remove power from V$_{BUS}$ when it detects the Sink is detached (vOPEN).

- A USB-based charger with a USB Type-C captive cable that does not support USB PD may supply V$_{BUS}$ at any time. It is recommended that such a charger only apply power to V$_{BUS}$ when it detects a Sink is present and remove power from V$_{BUS}$ when it detects the Sink is not present (vOPEN).

- A USB-based charger with a USB Type-C captive cable shall limit its current advertisement so as not to exceed the current capability of the cable (up to 5 A).

- A USB-based charger with a USB Type-C captive cable which is not capable of data communication shall advertise USB Type-C Current of at least 1.5 A. It shall short D+ and D− together with a resistance less than 200 ohms. This will ensure backwards compatibility with legacy sinks which may use *USB BC 1.2* for charger detection is recommended that such a charger short D+ and D− together with a resistance less than 200 ohms.

- The voltage as measured at the plug of a USB-based charger with a USB Type-C captive cable may be up to 0.75 × I / 3 V (0 < I ≤ 3 A), or 0.75 × I / 5 V (0 < I ≤ 5 A) lower than the standard tolerance range for the chosen voltage, where I is the actual current being drawn.