USB Type-C ENGINEERING CHANGE NOTICE

Title: Clarification of Billboard Requirements
Applied to: USB Type-C Specification Release 2.1, May 2021

Brief description of the functional changes proposed:
This ECR proposes to update the spec to provide clarification on the requirement for USB4 devices to expose USB Billboard device class interface.

Benefits as a result of the proposed changes:
The proposed change provides clarity to manufacturers on when it is required to expose USB Billboard device class for USB4 devices.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
No impact to existing devices.

An analysis of the hardware implications:
None

An analysis of the software implications:
None

An analysis of the compliance testing implications:
Compliance would have to be updated.

Actual Change Requested

(a). Section 5.2.2., Page 255

From Text:

USB4 devices shall provide a USB interface exposing a *USB Billboard Device Class* when it cannot connect as a *USB4* device within tUSB4Timeout.

If the *USB4* device additionally supports Alternate Modes, the device shall complete the *USB4* discovery and entry process (successful or not) before falling back to *USB3.2* or *USB 2.0* and exposing an appropriate *USB Billboard Device Class*.

To Text:

The USB4 device~~s~~ shall provide a USB interface exposing a *USB Billboard Device Class* when it cannot connect as a *USB4* device ~~within tUSB4Timeout~~ and doesn't support and expose equivalent functionality over an Alternate Mode, USB3.2 and/or USB2 within tUSB4Timeout.

If the *USB4* device ~~additionally~~ supports Alternate Modes, the device shall complete the *Alternate Mode* discovery and entry process (successful or not) before falling back to *USB3.2* or *USB 2.0* and, when required, exposing an appropriate *USB Billboard Device Class*.

(b). Section 5.3.2., Page 256

From Text:

In cases where the full functional capabilities or the highest performance of the *USB4* device requires more than the power being offered by the host, the device shall be minimally capable of providing the user with basic functionality as expected for the type and listed functions of the device. This allows for making available a higher level of operation or performance when a higher level of power is supplied, e.g. 15 W for full functionality versus 7.5 W for basic functionality. In this case, the device shall expose a Billboard that indicates functionality is limited by the available power.

To Text:

In cases where the full functional capabilities or the highest performance of the *USB4* device requires more than the power being offered by the host, the device shall be minimally capable of providing the user with basic functionality as expected for the type and listed functions of the device. This allows for making available a higher level of operation or performance when a higher level of power is supplied, e.g. 15 W for full functionality versus 7.5 W for basic functionality. In this case, the device shall expose a

Billboard if the device is unable to provide equivalent functionality limited by the available power.

(C). Appendix E Alternate Modes., Page 379

From Text:

All hosts and devices (except chargers and clearly marked charge -through ports) using a USB Type-C® receptacle shall expose a USB interface (minimally *USB 2.0*). In the case where the host or device optionally supports Alternate Modes:

- The host and device shall use *USB Power Delivery* Structured Vendor Defined Messages (Structured VDMs) to discover, configure and enter/exit modes to enable Alternate Modes.
- The device is strongly encouraged to provide equivalent USB functionality where such exists for best user experience.
- Where no equivalent USB functionality is implemented, the device shall provide a USB interface exposing a *USB Billboard Device Class* used to provide information needed to identify the device. A device is not required to provide a USB interface exposing a *USB Billboard Device Class* for non-user facing modes (e.g., diagnostic modes).

To Text:

All hosts and devices (except chargers and clearly marked charge -through ports) using a USB Type-C® receptacle shall expose a USB interface (minimally *USB 2.0*). In the case where the host or device optionally supports Alternate Modes:

- The host and device shall use *USB Power Delivery* Structured Vendor Defined Messages (Structured VDMs) to discover, configure and enter/exit modes to enable Alternate Modes.
- The device is strongly encouraged to provide equivalent ~~USB~~ functionality over USB3.2 and/or USB2 where such exists for best user experience.
- Where no equivalent ~~USB~~ functionality is implemented, the device shall provide a USB interface exposing a *USB Billboard Device Class* used to provide information needed to identify the device. A device is not required to provide a USB interface exposing a *USB Billboard Device Class* for non-user facing modes (e.g., diagnostic modes)