USB Power Delivery ENGINEERING CHANGE NOTICE

Title: FRS Timing Problem
Applied to: USB Power Delivery Specification Revision 3.1 Version 1.1

Brief description of the functional changes proposed:
Adjust FRS timing to align with changes to USB Type-C spec. Corrects text ambiguities.

Benefits as a result of the proposed changes:

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

An analysis of the hardware implications:

An analysis of the software implications:

An analysis of the compliance testing implications:

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Actual Change Requested

(a). Section 6.6.17.1 and .2

From Text:

6.6.17.1 tFRSwap5V

During a Fast Role Swap, the initial Source ***Shall*** start the ***PS_RDY*** Message within ***tFRSwap5V*** after it has sent the ***Accept*** Message and V_{BUS} is at ***vSafe5V***. The ***tFRSwap5V*** time Shall be measured from the later of the last bit of the ***EOP*** for the ***GoodCRC*** Message corresponding to the ***Accept*** message and V_{BUS} being within ***vSafe5V***, until the first bit of the response ***PS_RD*** Message Preamble has been transmitted by the Physical Layer.

To Text:

6.6.17.1 tFRSwap5V

During a Fast Role Swap, the initial Source ***Shall*** start the ***PS_RDY*** Message when both:

- A minimum of ***tFRSwap5V*** has transpired after the Source has sent the ***Accept*** Message, and
- V_{BUS} is at or below ***vSafe5V***.

The ***tFRSwap5V*** time Shall be measured from the later of the last bit of the ***EOP*** for the ***GoodCRC*** Message corresponding to the ***Accept*** message and V_{BUS} being within ***vSafe5V***, until the first bit of the response ***PS_RDY*** Message Preamble has been transmitted by the Physical Layer.

(b). Section 7.3.15,Table 7-15 Sequence Description for Fast Role Swap

From Text:

E		When V_{BUS} = ***vSafe5V*** the new Source May provide power to V_{BUS}. When V_{BUS} < ***vSafe5V*** the new Source ***Shall*** provide power to V_{BUS} within ***tSrcFRSwap*** and the ***PS_RDY*** Message can be sent to the new Sink at Step 7 of the messaging sequence.

To Text:

E		When V_{BUS} = ***vSafe5V*** the new Source *May* provide power to V_{BUS}. When V_{BUS} < ***vSafe5V*** the new Source ***Shall*** provide power to V_{BUS} within ***tSrcFRSwap.*** Once the new Source is providing power, the ***PS_RDY*** Message can be sent to the new Sink at Step 7 of the messaging sequence.

From Text:

5	Policy Engine sends a ***PS_RDY*** Message to the initial Sink that is transitioning to be the new Source. The Policy Engine ***Shall*** wait for Step D1 before sending the ***PS_RDY*** Message, and ***Shall*** send the ***PS_RDY*** Message within ***tFRSwap5V*** of sending the ***Accept*** Message.	Policy Engine receives the ***PS_RDY*** Message from the new Sink.

To Text:

5	Policy Engine sends a ***PS_RDY*** Message to the initial Sink that is transitioning to be the new Source. The Policy Engine ***Shall*** start the ***PS_RDY*** Message at least ***tFRSwap5V*** after it has sent the Accept Message, and Step D1 has completed.	Policy Engine receives the ***PS_RDY*** Message from the new Sink.