

USB Power Delivery ENGINEERING CHANGE NOTICE

Title: EPR_Source_capabilities to force sink to Exit EPR
Applied to: USB Power Delivery Specification Revision 3.2
Version 1.0

Brief description of the functional changes proposed:

As per some discussion in Compliance working group, EPR_source_capabilities construction when source wants to force Sink to exit EPR mode is not clear enough. This ECN clarifies this use case

Benefits as a result of the proposed changes:

Clarification for both implementers and test equipment

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

Device might be not compliant

An analysis of the hardware implications:

An analysis of the software implications:

An analysis of the compliance testing implications:

SW might be changed

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Actual Change Requested

(a). Section x.x.x, Page x, Figure/Table x-x

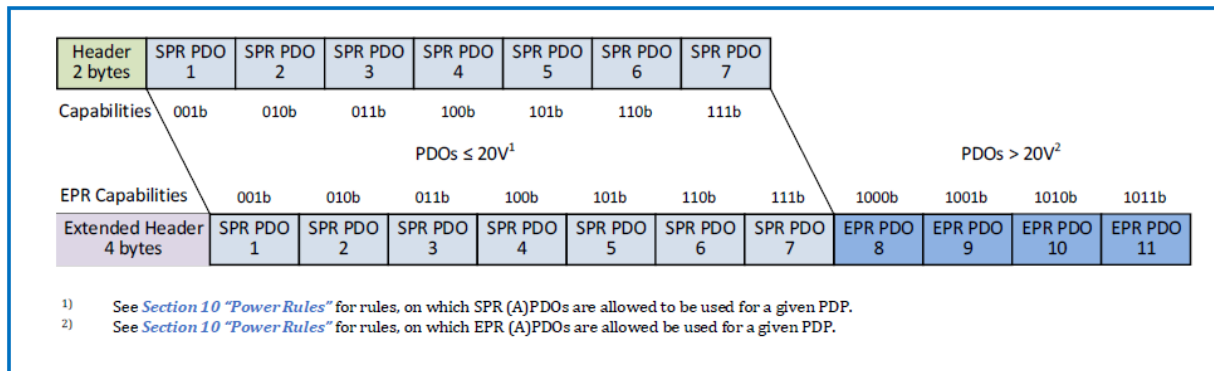
From Text:

6.5.15.1 EPR Capabilities Message Construction

The EPR Capabilities Messages (*EPR_Source_Capabilities* and *EPR_Sink_Capabilities*) are extended data Messages with the first seven positions filled with the same SPR PDOs returned by the SPR Capabilities Messages (*Source_Capabilities* and *Sink_Capabilities*) followed by the EPR PDOs (see [Section 1.6 “Terms and Abbreviations”](#)) starting in the eighth position. See [Figure 6-53 “Mapping SPR Capabilities to EPR Capabilities”](#).

Figure 6-53 “Mapping SPR Capabilities to EPR Capabilities”

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Power Data Objects in the EPR Capabilities Messages **Shall** be sent in the following order:

- 1) The SPR PDOs as reported in the SPR Capabilities Message.
- 2) If the SPR Capabilities Message contains fewer than 7 PDOs, the unused Data Objects **Shall** be zero filled.
- 3) The EPR PDOs as defined in [Section 6.4.1 “Capabilities Message”](#) **Shall** start at object position 8 and **Shall** be sent in the following order: Fixed Supply Objects that offer 28V, 36V or 48V, if present, **Shall** be sent in Voltage order; lowest to highest.

One EPR Adjustable Voltage Supply Object **Shall** be sent.

6.5.15.2 EPR_Source_Capabilities Message

The *EPR_Source_Capabilities* is an EPR Capabilities message containing a list of Power Data Objects that the EPR Source is capable of supplying. It is sent by an EPR Source in order to convey its capabilities to a Sink. An EPR Source **Shall** send the *EPR_Source_Capabilities* message:

- When entering EPR Mode
- While in EPR Modes when its capabilities change
- In response to an *EPR_Get_Source_Cap* Message

An EPR Sink operating in EPR Mode **Shall** evaluate every *EPR_Source_Capabilities* Message it receives and **Shall** respond with a *EPR_Request* Message. If its power consumption exceeds the Source’s capabilities, it **Shall** re-negotiate so as not to exceed the Source’s most recently Advertised capabilities.

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While operating in SPR Mode, an EPR Sink receiving an *EPR_Source_Capabilities* message in response to an *EPR_Get_Source_Cap* Messages **Shall Not** respond with an *EPR_Request* Message.

The (A)PDOs in an *EPR_Source_Capabilities* Message **Shall** only be requested using the *EPR_Request* Message and only when in EPR Mode.

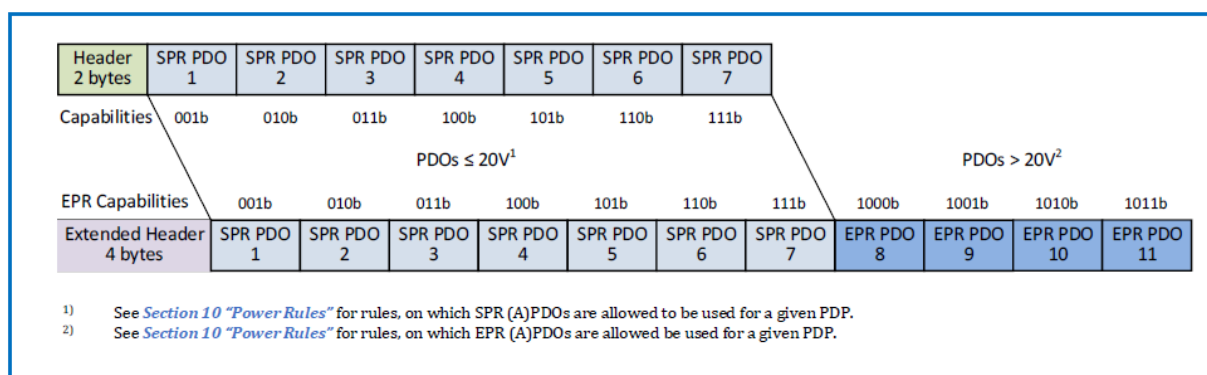
To Text:

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The (A)PDOs in an *EPR_Source_Capabilities* Message **Shall** only be requested using the *EPR_Request* Message and only when in EPR Mode.

When Source wants to exit EPR mode, if not already in power contract with an SPR (A)PDO, it shall send an *EPR_Source_Capabilities* message with no EPR PDOs (i.e seven SPR PDOs including any zero padded ones). See Figure 6-x “*EPR_Source_Capabilities* message with no EPR PDOs”.

Figure 6-x *EPR_Source_Capabilities* message with no EPR PDOs

