

# USB4 2.0 ENGINEERING CHANGE NOTICE FORM

**Title: Change the conditions to clear Start TxFFE bit**  
**Applied to: USB4 Specification Version 2.0**

<b>Brief description of the functional changes:</b>
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Changing the conditions to clear the Start TxFFE bit so it will not be changed by the TxFFE partner after clearing it.
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<b>Benefits as a result of the changes:</b>
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Behavior match the required status of this bit after TxFFE negotiation.
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<b>An assessment of the impact to the existing revision and systems that currently conform to the USB specification:</b>
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None
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<b>An analysis of the hardware implications:</b>
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None
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<b>An analysis of the software implications:</b>
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None
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<b>An analysis of the compliance testing implications:</b>
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None.
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## Actual Change

### (a). Table 4-23 – Gen 4 Partner Tx Status Byte

#### To Text:

Register	Register Name	Byte	Bits	Field Name and Description	Type	Default Value
14	Gen 4 TxFFE		5:0	<b>Gen 4 TxFFE Setting</b> – Index of the Gen 4 TxFFE configuration loaded by the transmitter.	RW	0h
			6	<b>Request Done</b> – Indicates whether the transmitter loaded the recent requested index of Gen 4 TxFFE configuration: 0b – Transmitter has not yet loaded the recent requested index of Gen 4 TxFFE configuration. 1b – Transmitter has loaded the recent requested index of Gen 4 TxFFE configuration.	RW	0b
			7	<b>Start TxFFE</b> – Indicates whether the Link Partner transmitter is ready to receive a TxFFE request: 0b – Transmitter is not ready to receive a TxFFE request. 1b – Transmitter is ready to receive a TxFFE request.  This bit <del>is</del> <u>shall be</u> cleared when the final TxFFE preset is set <u>and Request Done bit is 0b</u> .	R/W SC	0b

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## (b). Section 4.1.2.5.1.2.2 - Gen 4 Receiver Flow

1. When the *Start TxFFE* field is set to 1b in the local *Gen 4 Partner Tx Status* byte, the receiver shall continue to step 2.
2. The receiver shall select a set of TxFFE parameters defined in Table 3-24. It shall set the *Gen 4 TxFFE Request* field to the selected Preset (0-41) and set the *New Request* bit to 1b in the *Gen 4 Rx Status & TxFFE Request* byte of its adjacent Router/Re-timer. To do this, the receiver sends a write Command that targets the Link Partner's Gen 4 TxFFE register.
3. When the *Request Done* bit is set to 1b in the local *Gen 4 Partner Tx Status* byte, the receiver shall:
  - a. Set the *New Request* bit to 0b in the *Gen 4 Rx Status & TxFFE Request* byte of its adjacent Router/Re-timer. To do this, the receiver sends a write Command that targets the Link Partner's Gen 4 TxFFE register.
  - b. Verify that the *Gen 4 TxFFE Setting* field in the local *Gen 4 Partner Tx Status* byte is set to the same value it selected in step 2. If not, go to step 4.
  - c. Evaluate its receiver behavior. If the equalization is complete, go to step 5.

*Note: If the Router is adjacent to a USB Type-C connector and is connected to its adjacent Router/Re-timer via an LRD Cable, the receiver should take into account the self-tuning of the LRD as described in the USB Type-C Specification.*

4. The receiver shall go to step 2 after the *Request Done* bit is set to 0b in the local *Gen 4 Partner Tx Status* byte.
5. The receiver shall clear the *Start TxFFE* bit after the *Request Done* bit is set to 0. TxFFE negotiation is done.