USB4 2.0 ENGINEERING CHANGE NOTICE FORM

Title: MST Packing Rules
Applied to: USB4 Specification Version 2.0

Brief description of the functional changes:
1. The requirement for minimal number of MTPs is converted to time slots. 2. In case of small packet the minimal number of time slots are equivalent to 15 full MTPs rather than 16. 3. Data from a time slot is packed into a single Sub-MTP TU 4. Version 2 Only: In case of last packet before low power state (ALPM), packet may be of any size.

Benefits as a result of the changes:
Update the Spec to match the ecosystem.

An assessment of the impact to the existing revision and systems that currently conform to the USB specification:
None.

An analysis of the hardware implications:
For DP IN Adapters – the change is a small relaxation. For DP OUT Adapters – the small relaxation needs to be tested.

An analysis of the software implications:
None.

An analysis of the compliance testing implications:
None.

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Actual Change

(a). 10.5.2.3 MST Packet Format

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A DP IN Adapter shall follow the rules below when constructing an MST Packet:

- The first 3 bytes of the MST Packet payload contains the first Sub-MTP TU Header.
- When concatenating two Sub-MTP TUs, the first TU is not be padded.
- The number of consecutive time slots (both allocated and unallocated) described by the Tunneled Packet shall not exceed 1088 time slots. (1088 time slots is the equivalent of full 17 MTPs)~~The maximum number of MTPs packed into one MST Packet does not exceed 17.~~
- The *Length* field in the Tunneled Packet Header does not include padding bytes.
- The Payload of the Tunneled Packet shall be between 230 and 252 Bytes (inclusive), unless the Payload contains the description of at least 960 time slots~~16 MTPs~~ or it is the last MST Packet before entering ALPM.
    - ~~An MTP is counted as contained within the Payload when at least one Sub-MTP TU in the Payload holds information about this MTP~~.

(b). 10.5.2.1 Sub-MTP TU

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A DP IN Adapter shall follow the rules below when constructing a Sub-MTP TU:

- A Sub-MTP TU is byte-aligned.
- The total length of a Sub-MTP TU (Header + Parameter Bytes + Data Bytes) does not exceed 252 Bytes.
- Slot 0 always starts a new Sub-MTP TU.
- A Sub-MTP TU includes data from one MTP only.
- A DP IN Adapter shall map an MTP into the minimum possible number of Sub-MTP TU
- A Sub-MTP TU shall be split into 2 Sub-MTP TUs if it does not fit into an MTP packet according to Section 10.5.2.3.
- Data from the same time slot is packed into a single Sub-MTP TU