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| *Title:* | **On semantics of the temporal MCTSs SEI message** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposal | | |
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# Abstract

This contribution proposes some asserted editorial changes to the semantics of the temporal motion-constrained tile sets (MCTSs) SEI message. The proposed text changes are based on the semantics of the temporal MCTSs SEI message as amended in JCTVC-AC1005-v2.

# Proposed text changes

*The current semantics of the MCTSs SEI message is as follows, where the places that should be improved are highlighted in yellow:*

...

The temporal motion-constrained tile sets SEI message indicates that the following constraints apply:

– No sample values outside each identified tile set or outside the picture are referenced for inter prediction.

– For PUs located directly left of the right tile boundary of each identified tile set except the last one at the bottom right, the following applies when CuPredMode[ xPb ][ yPb ] is equal to MODE\_INTER, where ( xPb, yPb ) specifies the top-left sample of the corresponding luma prediction block relative to the top-left sample of the current picture:

– With the number of spatial merging candidates numSpatialMergeCand derived as follows:

numSpatialMergeCand = availableFlagA0 + availableFlagA1 +  (D‑42)  
 availableFlagB0 + availableFlagB1 + availableFlagB2

where availableFlagA0, availableFlagA1, availableFlagB0, availableFlagB1, and availableFlagB2 are the output of the derivation process for spatial merging candidates specified in clause 8.5.3.2.3, the following applies:

– If numSpatialMergeCand is equal to 0, merge\_flag[ xPb ][ yPb ] is equal to 0.

– Otherwise (numSpatialMergeCand is greater than 0), merge\_idx[ xPb ][ yPb ] is in the range of 0 to numSpatialMergeCand − 1, inclusive.

– With the number of spatial motion vector predictor candidates numSpatialMvpCand derived as follows:

if ( availableFlagLXA )  
 numSpatialMvpCand = availableFlagLXA + ( ( mvLXA  !=  mvLXB ) ? availableFlagLXB : 0 )  
else (D‑43)  
 numSpatialMvpCand = availableFlagLXB

where availableFlagLXA, availableFlagLXB, mvLXA, and mvLXB are the output of the derivation process for motion vector predictor candidates from neighbouring prediction unit partitions specified in clause 8.5.3.2.7, the following applies:

– If numSpatialMvpCand is equal to 0, mvp\_l0\_flag[ xPb ][ yPb ] and mvp\_l1\_flag[ xPb ][ yPb ] is equal to 1.

– Otherwise (numSpatialMvpCand is greater than 0), mvp\_l0\_flag[ xPb ][ yPb ] and mvp\_l1\_flag[ xPb ][ yPb ] is in the range of 0 to numSpatialMvpCand − 1, inclusive.

NOTE 1 – The first constraint restricts motion vectors to point to full-sample locations inside each identified tile set and to fractional-sample locations that require only full-sample locations inside each identified tile set for interpolation. The second constraint restricts the usage of motion vector candidates derived from blocks outside each identified tile set.

*...*

*The semantics of the MCTSs SEI message is changed as follows, where the changed parts are highlighted in green:*

...

The temporal motion-constrained tile sets SEI message indicates that the following constraints apply:

– There shall be no sample values outside each identified tile set or outside the picture that are referenced for inter prediction.

– For PUs located directly left of the right tile boundary of each identified tile set except the last one at the bottom right, the following applies when CuPredMode[ xPb ][ yPb ] is equal to MODE\_INTER, where ( xPb, yPb ) specifies the top-left sample of the corresponding luma prediction block relative to the top-left sample of the current picture:

– With the number of spatial merging candidates numSpatialMergeCand derived as follows:

numSpatialMergeCand = availableFlagA0 + availableFlagA1 +  (D‑42)  
 availableFlagB0 + availableFlagB1 + availableFlagB2

where availableFlagA0, availableFlagA1, availableFlagB0, availableFlagB1, and availableFlagB2 are the output of the derivation process for spatial merging candidates specified in clause 8.5.3.2.3, the following applies:

– If numSpatialMergeCand is equal to 0, merge\_flag[ xPb ][ yPb ] shall be equal to 0.

– Otherwise (numSpatialMergeCand is greater than 0), merge\_idx[ xPb ][ yPb ] shall be in the range of 0 to numSpatialMergeCand − 1, inclusive.

– With the number of spatial motion vector predictor candidates numSpatialMvpCand derived as follows:

if ( availableFlagLXA )  
 numSpatialMvpCand = availableFlagLXA + ( ( mvLXA  !=  mvLXB ) ? availableFlagLXB : 0 )  
else (D‑43)  
 numSpatialMvpCand = availableFlagLXB

where availableFlagLXA, availableFlagLXB, mvLXA, and mvLXB are the output of the derivation process for motion vector predictor candidates from neighbouring prediction unit partitions specified in clause 8.5.3.2.7, the following applies:

– If numSpatialMvpCand is equal to 0, mvp\_l0\_flag[ xPb ][ yPb ] and mvp\_l1\_flag[ xPb ][ yPb ] shall be both equal to 1.

– Otherwise (numSpatialMvpCand is greater than 0), mvp\_l0\_flag[ xPb ][ yPb ] and mvp\_l1\_flag[ xPb ][ yPb ] shall be both in the range of 0 to numSpatialMvpCand − 1, inclusive.

NOTE 1 – The first constraint restricts that motion vectors point either to full-sample locations inside each identified tile set or to fractional-sample locations that require only full-sample locations inside each identified tile set for interpolation. The second constraint prohibits the usage of motion vector candidates for temporal motion vector prediction derived from blocks outside each identified tile set.

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# Patent rights declaration(s)

**To the knowledge of the authors, Huawei Technologies Co., Ltd. does not have current or pending patent rights relating to the technology described in this contribution.**