

# On issues for interlaced format support in HEVC standard (JCTVC-G170/ M21723)

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# Summary

- Background
- Issues of interlaced format support
  - Identify complementary field pair
  - Reference picture management
  - Handle different chroma vertical sampling positions
- Recommend to establish BoG and AHG on interlaced format support

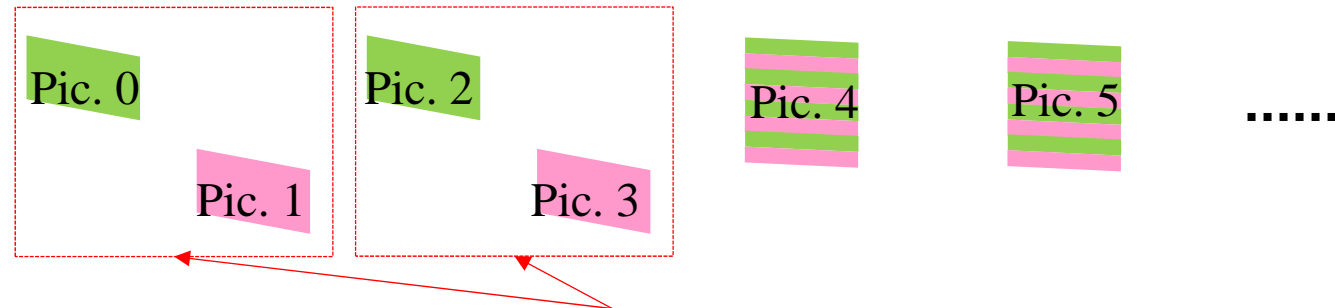
# Background

- In the last meeting, JCTVC-F194 proposed support of interlaced format in HEVC standard
- It was recognized that the current requirements document does not prohibit consideration of interlaced video

This contribution presents issues to be considered toward support of interlaced video in HEVC standard.

# Identify Complementary Field Pair

- Current WD does not have a means for identifying complementary field pair; **field\_pic\_flag** and **bottom\_field\_flag** syntaxes should be supported for that purpose.

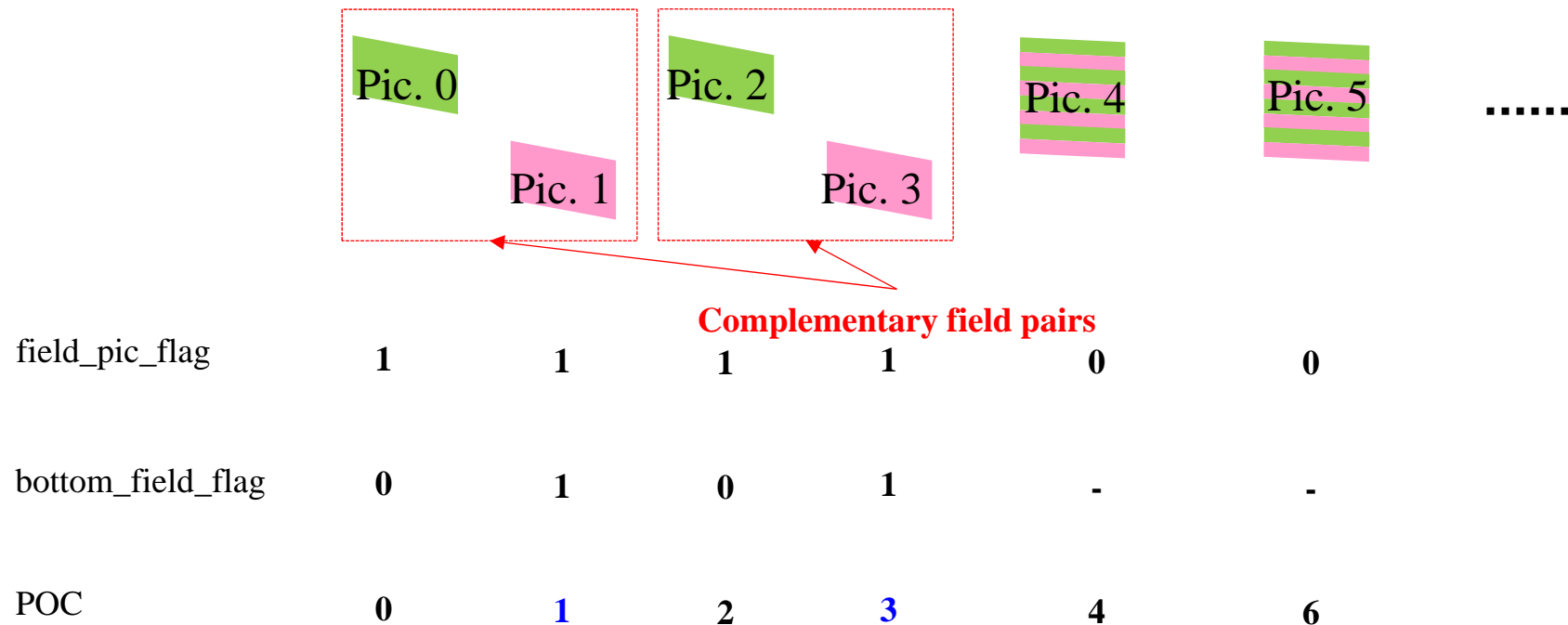


**Complementary field pairs**

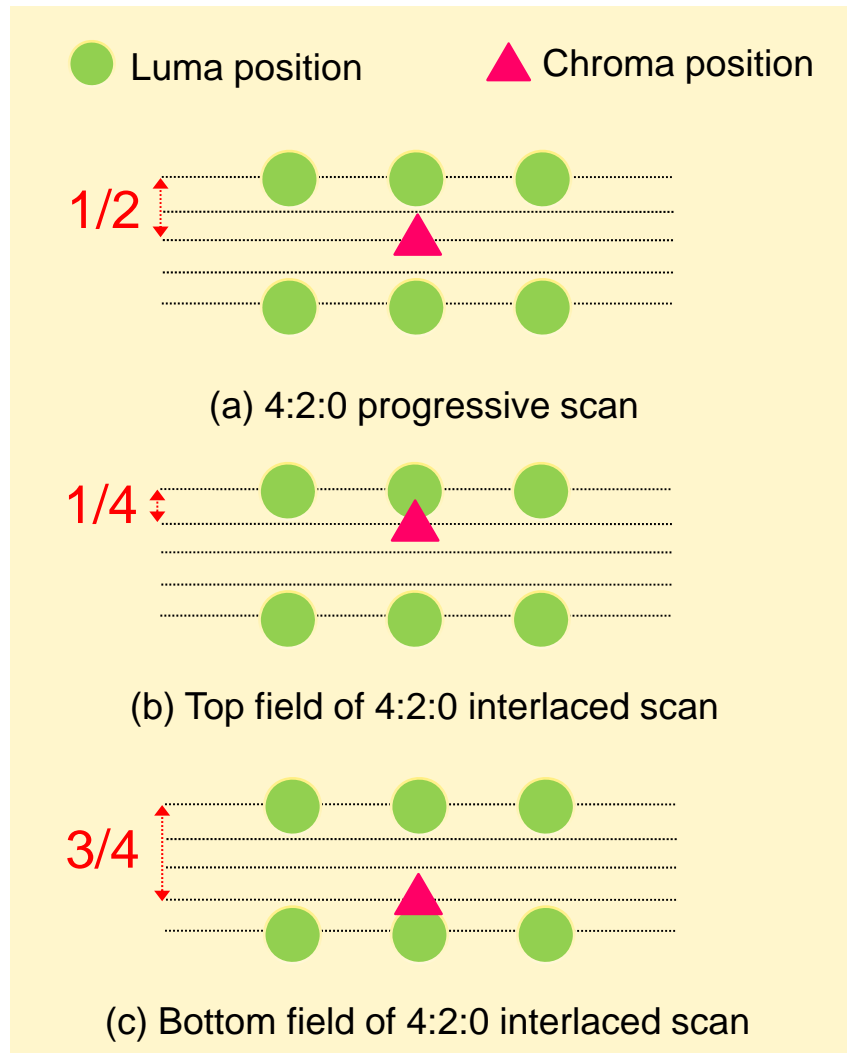
frame_num	0	0	1	1	2	3
field_pic_flag	1	1	1	1	0	0
bottom_field_flag	0	1	0	1	-	-
POC	0	0	2	2	4	6

# Reference Picture Management

- AHG21 studies a absolute signaling method of reference pictures using POC and temporal\_id.
- If HEVC takes the AHG21 method, then frame\_num is removed. Therefore introducing **a parity constraint on the POC value** or keeping frame\_num (only for identifying complementary field pair) should be considered.



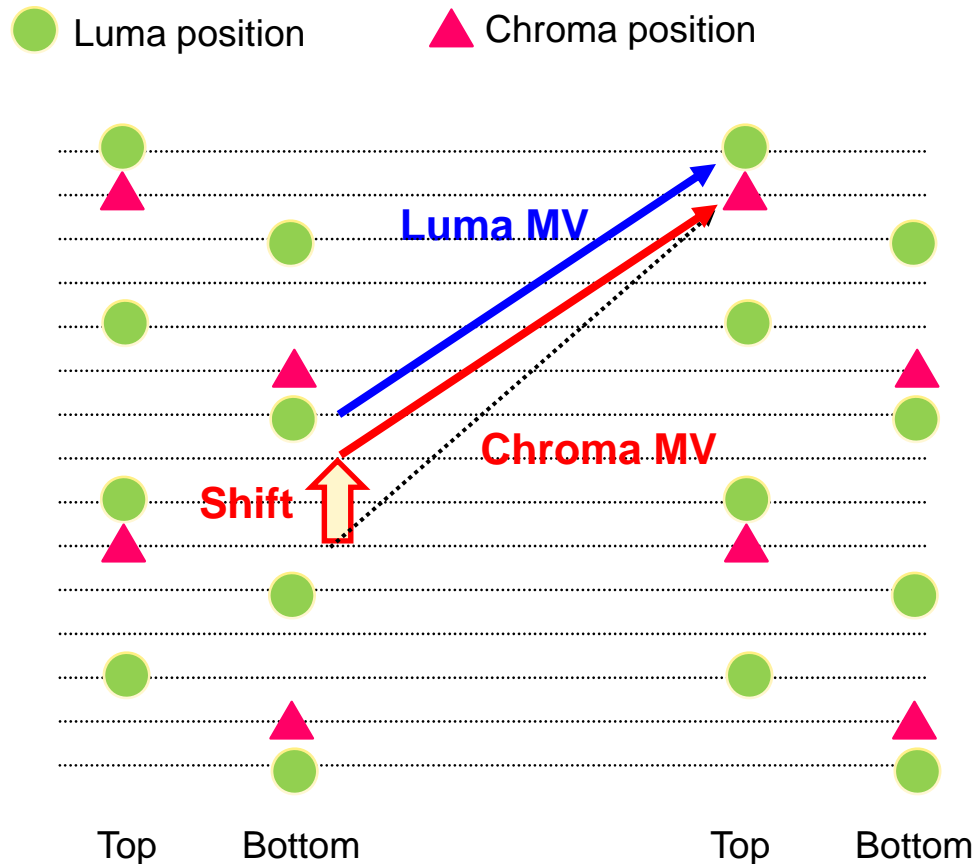
# Handle Different Chroma Vertical Sampling Positions between 420p and 420i Videos



- Chroma vertical sampling position is different between 4:2:0 progressive and interlaced formats
- Applying the same processing for 4:2:0 progressive and interlaced formats results in chroma misalignment.
- The chroma misalignment is solved by minor modifications to *chroma MV derivation process* and *luma down sampling process for intra chromaFromLuma Mode*.

# Modifications to Chroma MV Derivation Process

- Vertical MV shift corrects Chroma MV misalignment and improves prediction accuracy



Small changes in both  
WD text and software

Bottom to top

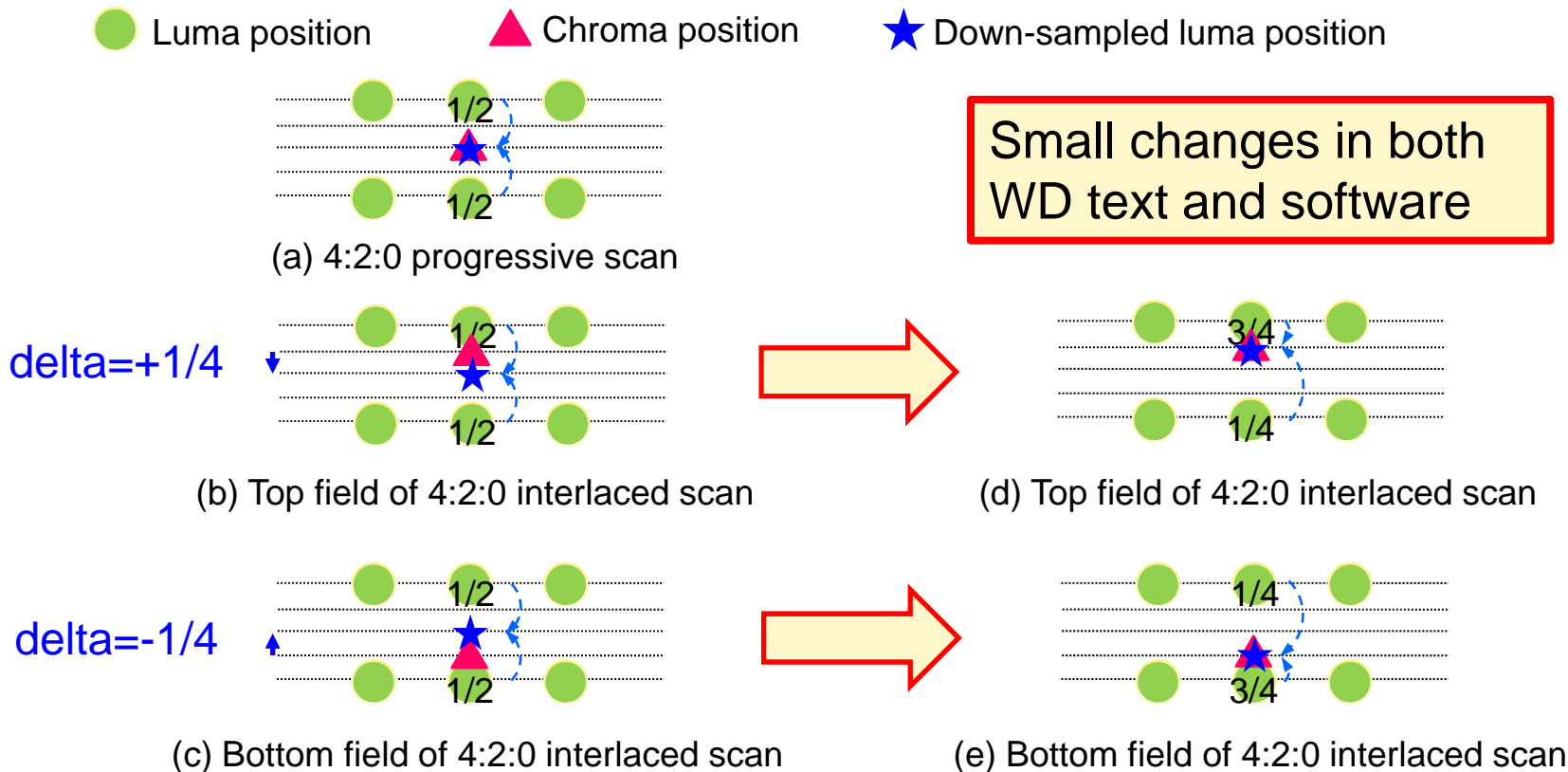
$$MV_{y_{chroma}} = \frac{MV_{y_{Luma}}}{2} - \frac{1}{4}$$

Top to bottom

$$MV_{y_{chroma}} = \frac{MV_{y_{Luma}}}{2} + \frac{1}{4}$$

# Modifications to Luma Down-Sampling Process for intra\_chromaFromLuma Mode

- Modified down-sampling corrects down-sampled luma misalignment and improves prediction accuracy





# Conclusions

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