

The background is a solid green color with a repeating pattern of white line-art icons. These icons include various nautical items like anchors, lifebuoys, and seashells, as well as outdoor and travel-related items like a compass, a map, a tent, and a backpack. The icons are scattered across the entire slide.

MEDIATEK

JVET-P0161

CE5-related: Deblocking considering prediction weights in BCW and TPM

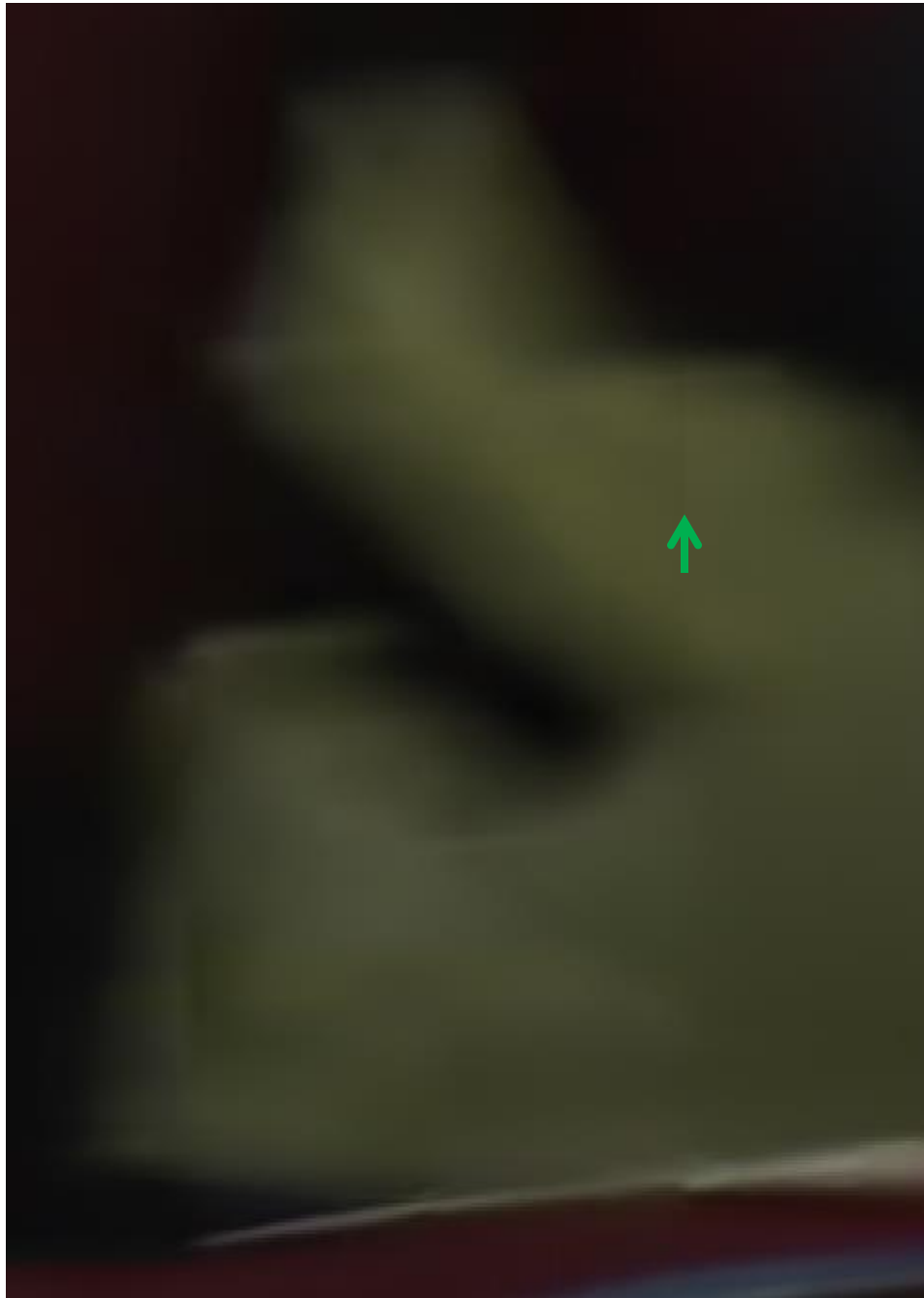
Chia-Ming Tsai, Chih-Wei Hsu, Yu-Wen Huang, Shaw-Min Lei

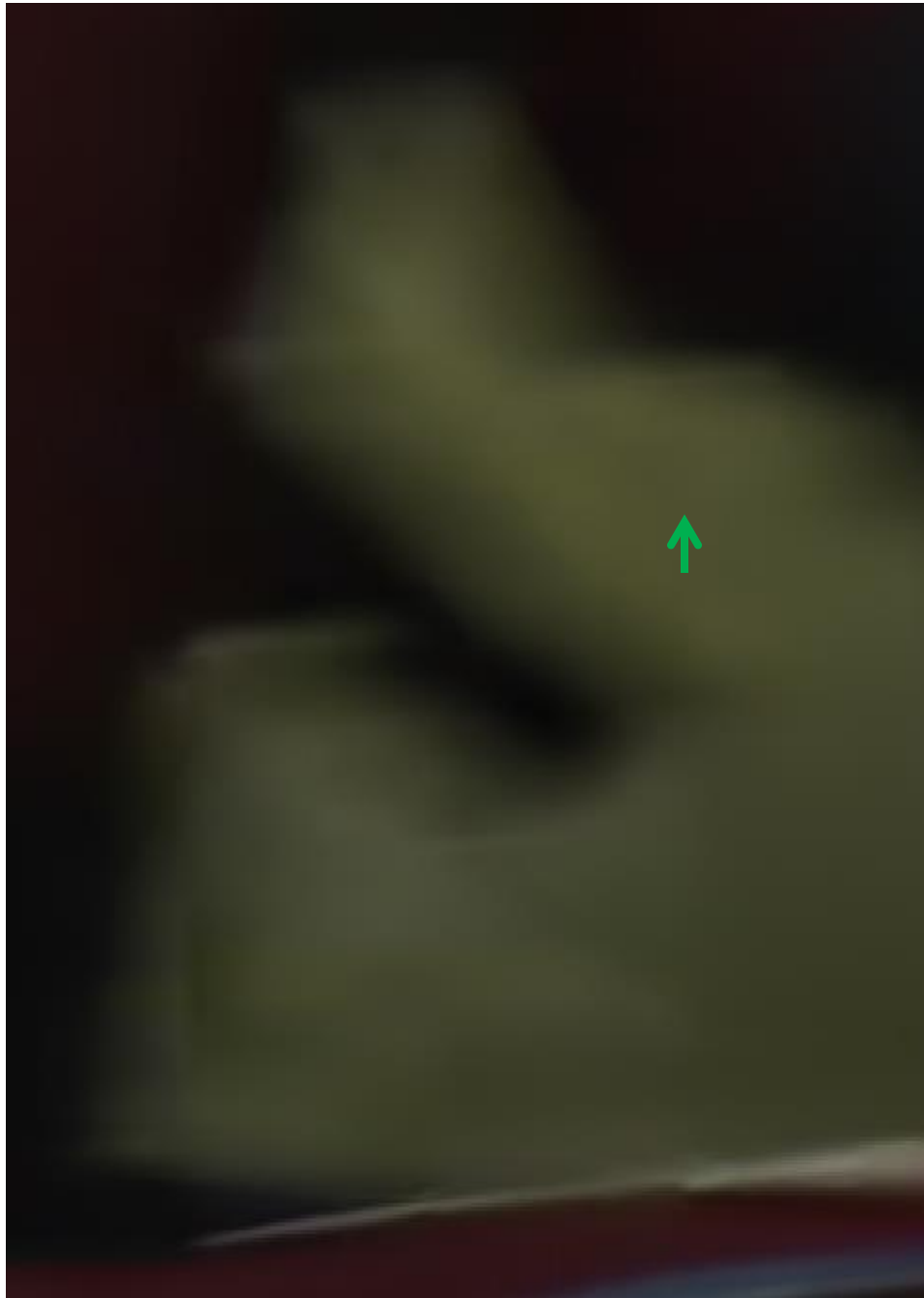
Presenter: Chih-Wei Hsu

Overall Summary

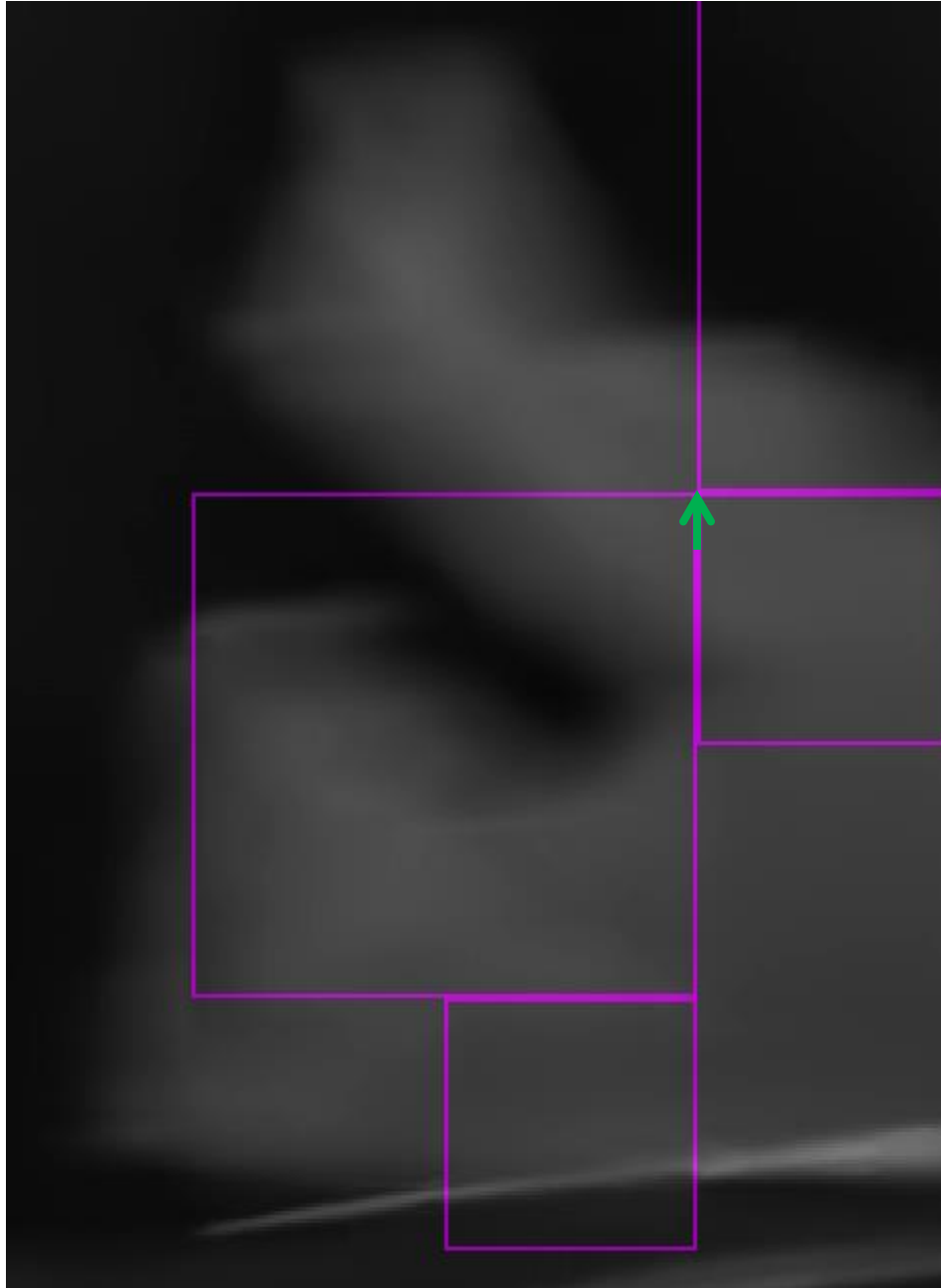
- Proposed to take the prediction weights of adjacent blocks into consideration when calculating the bS in deblocking
- Method 1
 - Sets bS of the current block edge for luma to 1 if the two adjacent blocks are coded with different BCW weights indexes
- Method 2
 - Sets bS of the current block edge for luma to 1 if any of the two adjacent blocks is coded with TPM

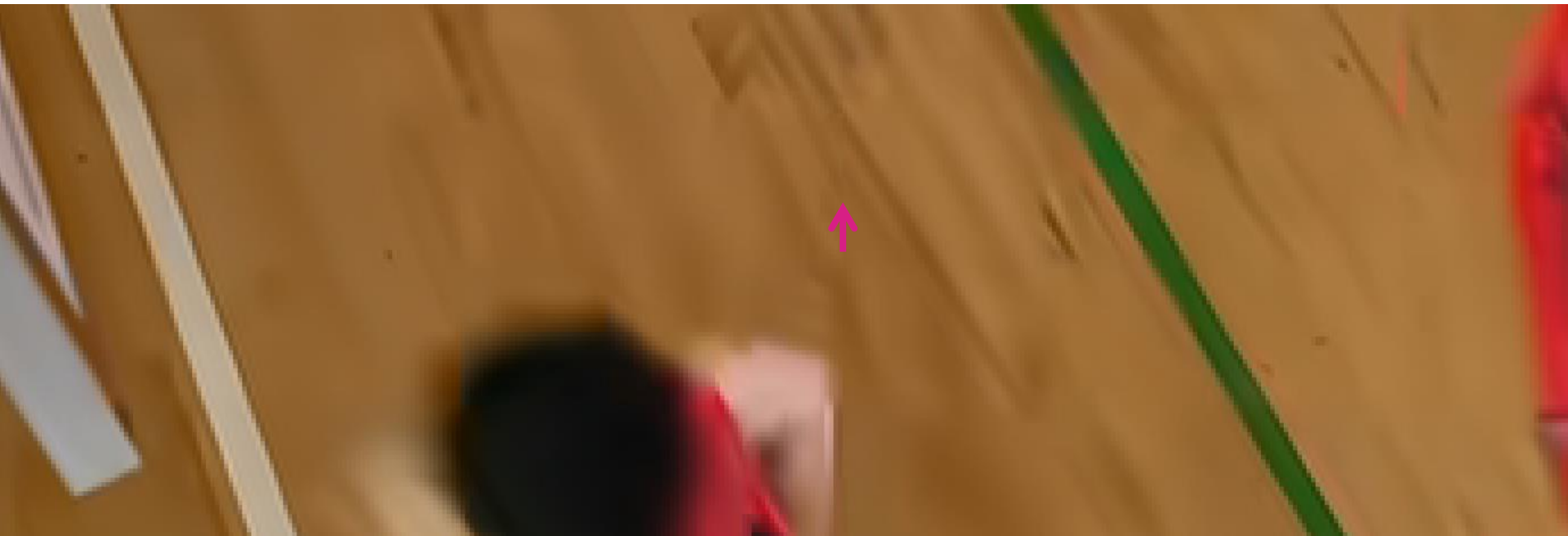
| Over VTM6.0 | | RA | | | | | LDB | | | | |
|---------------|----------|-------|--------|--------|------|------|--------|--------|--------|------|------|
| | | Y | U | V | EncT | DecT | Y | U | V | EncT | DecT |
| Under ALF-on | Method 1 | 0.02% | 0.03% | 0.04% | 100% | 102% | -0.01% | 0.05% | -0.17% | 100% | 101% |
| | Method 2 | 0.00% | 0.01% | 0.01% | 100% | 102% | 0.02% | 0.02% | 0.07% | 100% | 102% |
| Under ALF-off | Method 1 | 0.02% | -0.01% | 0.01% | 99% | 99% | 0.00% | -0.11% | -0.17% | 99% | 98% |
| | Method 2 | 0.01% | -0.01% | -0.02% | 99% | 101% | 0.02% | -0.14% | -0.14% | 99% | 97% |

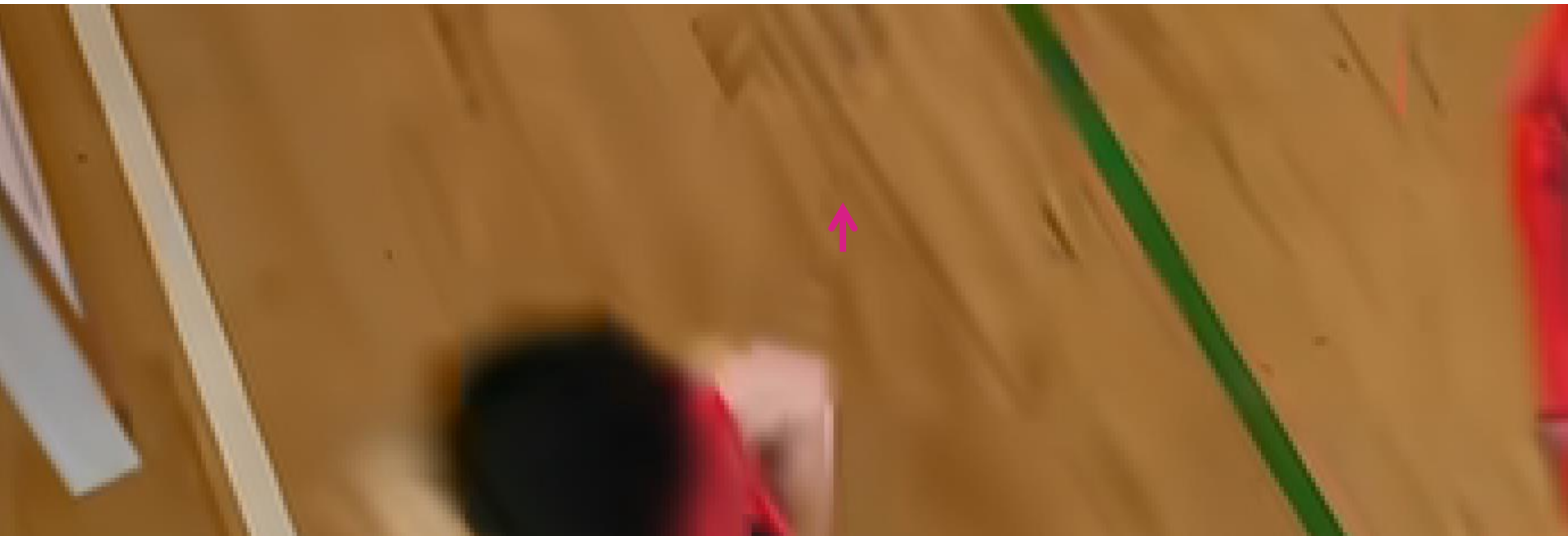




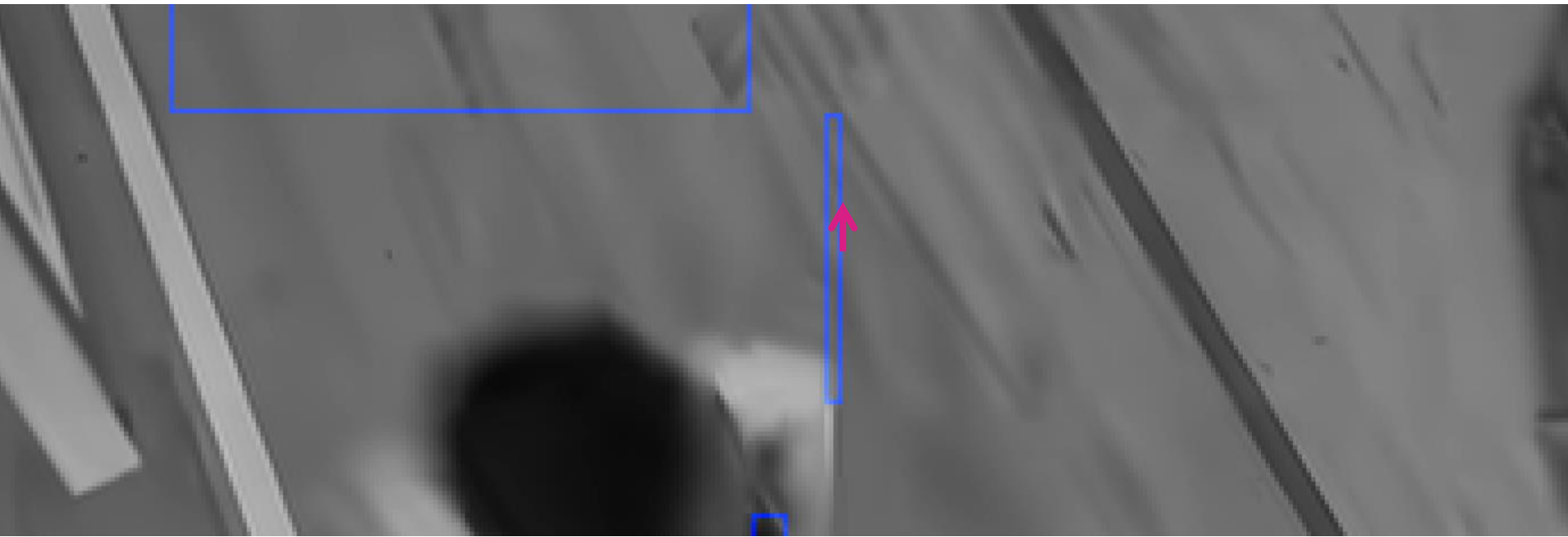
VTM6.0, RA, QP=37, #9 decoded picture of BasketballDrill test sequence
Blocks with nonzero BCW index are marked in **fuchsia**







VTM6.0, RA, QP=37, #39 decoded picture of FoodMarket test sequence
Blocks coded with TPM are marked in blue



Detailed Results of Method 1

| | Random access Main10 | | | | | Random access Main10 | | | | |
|----------------|----------------------|--------------|---------------|-------------|-------------|-----------------------|---------------|---------------|------------|------------|
| | Over VTM-6.0 | | | | | Over VTM-6.0, ALF-off | | | | |
| | Y | U | V | EncT | DecT | Y | U | V | EncT | DecT |
| Class A1 | 0.00% | 0.04% | 0.01% | 100% | 103% | 0.01% | -0.01% | -0.01% | 100% | 103% |
| Class A2 | 0.05% | 0.00% | 0.00% | 100% | 100% | 0.02% | -0.03% | 0.02% | 99% | 97% |
| Class B | 0.01% | 0.09% | 0.05% | 100% | 102% | 0.03% | 0.00% | 0.01% | 98% | 100% |
| Class C | 0.00% | -0.02% | 0.07% | 100% | 102% | 0.01% | 0.00% | 0.00% | 98% | 98% |
| Overall | 0.02% | 0.03% | 0.04% | 100% | 102% | 0.02% | -0.01% | 0.01% | 99% | 99% |
| Class D | 0.00% | 0.01% | 0.00% | 100% | 101% | 0.02% | 0.07% | 0.02% | 99% | 98% |
| Class F | 0.01% | -0.01% | -0.02% | 100% | 102% | 0.01% | -0.01% | 0.01% | 98% | 100% |
| | Low delay B Main10 | | | | | Low delay B Main10 | | | | |
| | Over VTM-6.0 | | | | | Over VTM-6.0, ALF-off | | | | |
| | Y | U | V | EncT | DecT | Y | U | V | EncT | DecT |
| Class B | 0.00% | 0.00% | -0.22% | 101% | 104% | 0.02% | -0.07% | -0.24% | 99% | 99% |
| Class C | -0.02% | 0.07% | -0.14% | 100% | 99% | 0.01% | 0.04% | -0.08% | 99% | 97% |
| Class E | 0.00% | 0.09% | -0.13% | 100% | 99% | -0.06% | -0.37% | -0.15% | 100% | 98% |
| Overall | -0.01% | 0.05% | -0.17% | 100% | 101% | 0.00% | -0.11% | -0.17% | 99% | 98% |
| Class D | 0.06% | -0.18% | 0.89% | 100% | 103% | 0.02% | 0.53% | 0.12% | 98% | 89% |
| Class F | 0.03% | 0.01% | 0.40% | 101% | 101% | 0.07% | 0.30% | -0.27% | 99% | 96% |

Detailed Results of Method 2

| | Random access Main10 | | | | | Random access Main10 | | | | |
|----------------|----------------------|--------------|--------------|-------------|-------------|-----------------------|---------------|---------------|------------|-------------|
| | Over VTM-6.0 | | | | | Over VTM-6.0, ALF-off | | | | |
| | Y | U | V | EncT | DecT | Y | U | V | EncT | DecT |
| Class A1 | -0.01% | 0.00% | 0.03% | 100% | 102% | 0.01% | 0.01% | 0.01% | 99% | 106% |
| Class A2 | 0.02% | 0.05% | -0.02% | 100% | 99% | 0.01% | -0.03% | 0.02% | 99% | 98% |
| Class B | -0.02% | -0.04% | 0.00% | 100% | 102% | 0.00% | -0.01% | -0.02% | 99% | 100% |
| Class C | 0.00% | 0.06% | 0.02% | 99% | 105% | 0.02% | 0.00% | -0.06% | 98% | 100% |
| Overall | 0.00% | 0.01% | 0.01% | 100% | 102% | 0.01% | -0.01% | -0.02% | 99% | 101% |
| Class D | 0.01% | -0.03% | -0.06% | 100% | 102% | -0.01% | 0.00% | 0.05% | 99% | 98% |
| Class F | 0.01% | 0.00% | -0.02% | 100% | 101% | 0.00% | -0.04% | 0.02% | 99% | 99% |
| | Low delay B Main10 | | | | | Low delay B Main10 | | | | |
| | Over VTM-6.0 | | | | | Over VTM-6.0, ALF-off | | | | |
| | Y | U | V | EncT | DecT | Y | U | V | EncT | DecT |
| Class B | 0.04% | 0.11% | -0.01% | 100% | 103% | 0.01% | -0.17% | -0.20% | 99% | 99% |
| Class C | 0.00% | -0.03% | 0.11% | 100% | 101% | 0.02% | -0.01% | -0.08% | 99% | 94% |
| Class E | 0.02% | -0.06% | 0.16% | 99% | 101% | 0.04% | -0.26% | -0.14% | 99% | 98% |
| Overall | 0.02% | 0.02% | 0.07% | 100% | 102% | 0.02% | -0.14% | -0.14% | 99% | 97% |
| Class D | 0.02% | 0.28% | 0.05% | 100% | 100% | 0.00% | 0.09% | -0.18% | 98% | 90% |
| Class F | 0.09% | 0.19% | 0.63% | 100% | 100% | 0.12% | 0.33% | 0.04% | 99% | 97% |

Summary

- Presented the results for setting the bS value of the current edge for luma to 1 when
 - The two adjacent blocks are coded with different BCW indexes
 - Any of the two adjacent blocks is coded with TPM
- Subjective analysis shows that the proposed methods can improve subjective quality
- It is suggested to adopt this proposal into VVC

Appendix

- Method 1
 - Sets bS of the current block edge for luma to 1 if the two adjacent blocks are coded with different BCW weights indexes
 - Specification text changes:

8.8.3.5 Derivation process of boundary filtering strength

...

- The variable $bS[xD_i][yD_j]$ is derived as follows:

- ...

- Otherwise, if the prediction mode of the coding subblock containing the sample p_0 is different from the prediction mode of the coding subblock containing the sample q_0 (i.e. one of the coding subblock is coded in IBC prediction mode and the other is coded in inter prediction mode), $bS[xD_i][yD_j]$ is set equal to 1.

- Otherwise, if $cIdx$ is equal to 0 and one or more of the following conditions are true, $bS[xD_i][yD_j]$ is set equal to 1:

- The coding subblock containing the sample p_0 and the coding subblock containing the sample q_0 are both coded in IBC prediction mode, and the absolute difference between the horizontal or vertical component of the block vectors used in the prediction of the two coding subblocks is greater than or equal to 8 in units of 1/16 luma samples.

- For the prediction of the coding subblock containing the sample p_0 different bcw_idx or different reference pictures or a different number of motion vectors are used than for the prediction of the coding subblock containing the sample q_0 .

- ...

Appendix

- Method 2
 - Sets bS of the current block edge for luma to 1 if any of the two adjacent blocks is coded with TPM
 - Specification text changes:

8.8.3.5 Derivation process of boundary filtering strength

...

- The variable $bS[xD_i][yD_j]$ is derived as follows:
 - ...
 - Otherwise, if the prediction mode of the coding subblock containing the sample p_0 is different from the prediction mode of the coding subblock containing the sample q_0 (i.e. one of the coding subblock is coded in IBC prediction mode and the other is coded in inter prediction mode), $bS[xD_i][yD_j]$ is set equal to 1.
 - Otherwise, if $cIdx$ is equal to 0 and one or more of the following conditions are true, $bS[xD_i][yD_j]$ is set equal to 1:
 - The coding subblock containing the sample p_0 or the coding subblock containing the sample q_0 is coded in TPM prediction mode.
 - The coding subblock containing the sample p_0 and the coding subblock containing the sample q_0 are both coded in IBC prediction mode, and the absolute difference between the horizontal or vertical component of the block vectors used in the prediction of the two coding subblocks is greater than or equal to 8 in units of 1/16 luma samples.
 - For the prediction of the coding subblock containing the sample p_0 different reference pictures or a different number of motion vectors are used than for the prediction of the coding subblock containing the sample q_0 .
 - ...