

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 compasses, as well as outdoor and travel-related symbols like a backpack, a tent, a bird, and a sun. The icons are scattered across the entire slide.

**MEDIATEK**

**JVET-Q0184**

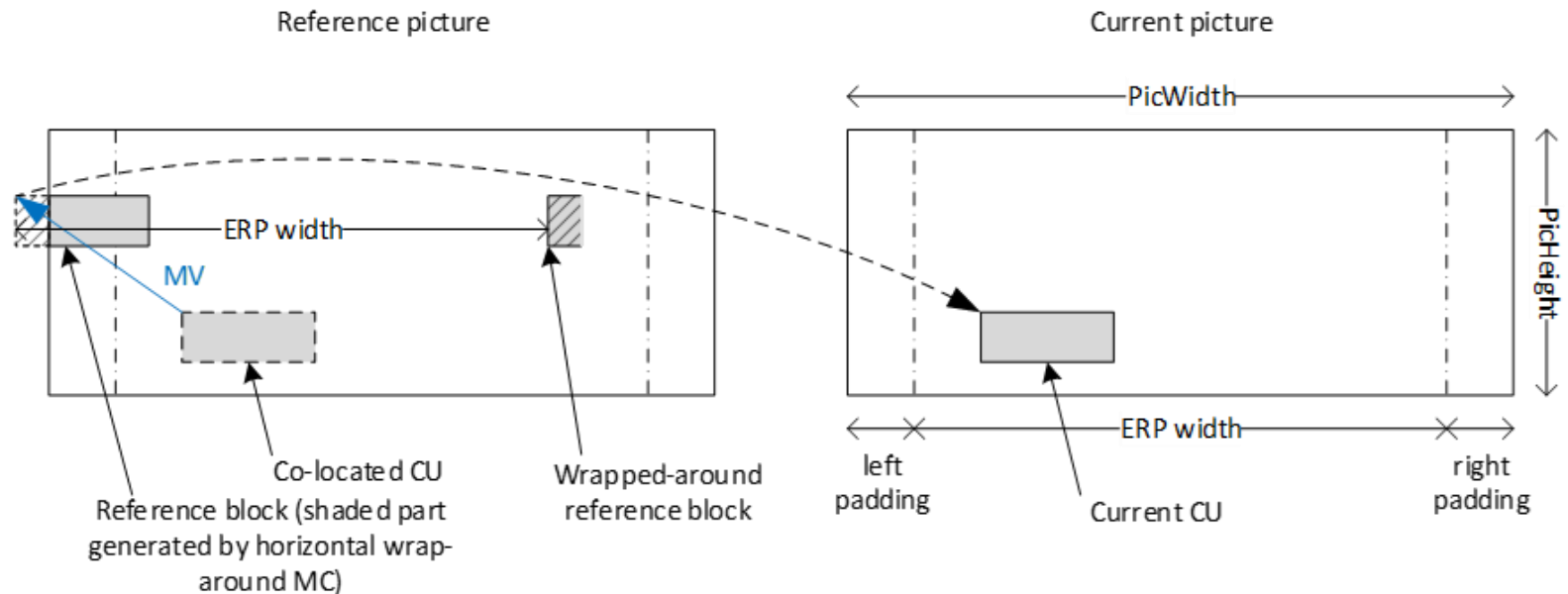
# **AHG9: On signalling of wrap-around motion compensation**

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# Introduction

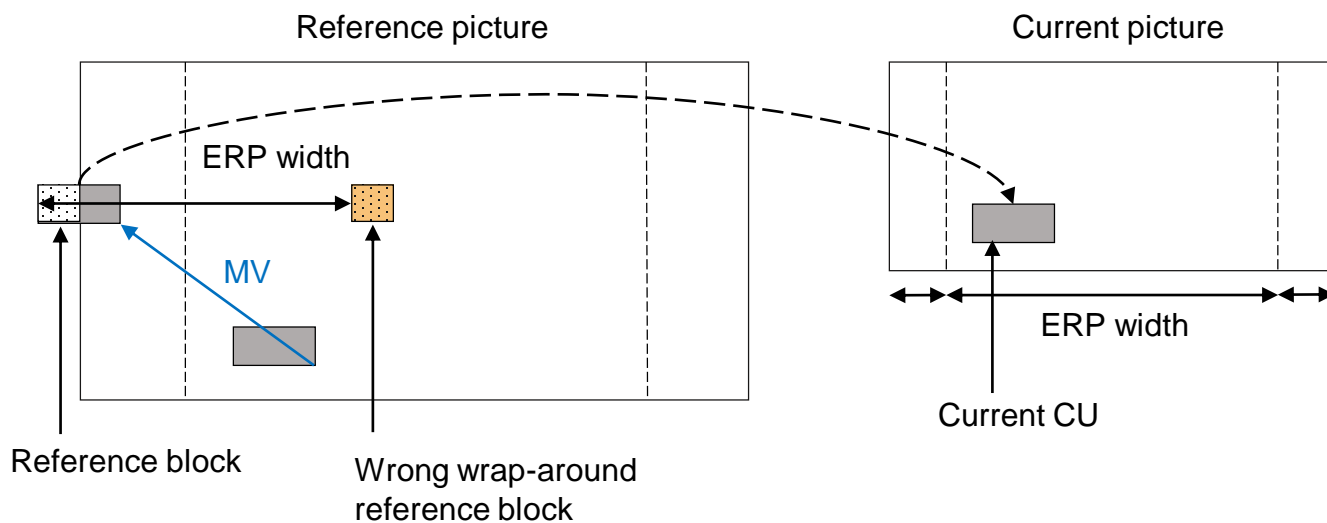
- In VVC Draft 7 , wrap-around offset is signalled in SPS
  - Should be set to the ERP width



- Resolutions of reference picture and current picture may be different
  1. When reference picture resampling (RPR) is enabled
  2. When inter layer reference picture (ILRP) is used

# Problem Description 1

When picture resolution is changing, it is wrong to signal a constant wrap-around offset in SPS



# Problem Description 2

Bug of the bitstream conformance requirement on `sps_ref_wraparound_enabled_flag`:

When the value of  $(\text{CtbSizeY} / \text{MinCbSizeY} + 1)$  is **less** than or equal to  $(\text{pic\_width\_in\_luma\_samples} / \text{MinCbSizeY} - 1)$ , the value of `sps_ref_wraparound_enabled_flag` shall be equal to 0.

- The word “**less**” should be corrected as “**greater**.”
- **pic\_width\_in\_luma\_samples** is not available in SPS.

It should be corrected as “`pic_width_max_in_luma_samples`.”

# Proposed Method

- Support wrap-around motion compensation only when `ref_pic_resampling_enabled_flag` is disabled and no ILRP is used
- Benefits
  - Wrap-around offset can be a constant for all pictures in a sequence
  - Simplify the normative check

## SPS RBSP syntax

... ..
<code>if(! ref_pic_resampling_enabled_flag &amp;&amp; ! inter_layer_ref_pics_present_flag){</code>
<code>  sps_ref_wraparound_enabled_flag</code>
<code>  if( sps_ref_wraparound_enabled_flag )</code>
<code>    sps_ref_wraparound_offset_minus1</code>
<code>}</code>
... ..

# Conclusion

- Issue in VVC Draft 7

When `ref_pic_resampling_enabled_flag` is enabled or ILRP is used, wrap-around motion compensation may be wrong for 360-degree video

- Proposed method

Enabling wrap-around motion compensation is allowed only when `ref_pic_resampling_enabled_flag` is disabled and no ILRP is used