

Title: **IC_TC_P testing**

Status: Input Document to JCT-VC

Purpose: Information

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Abstract

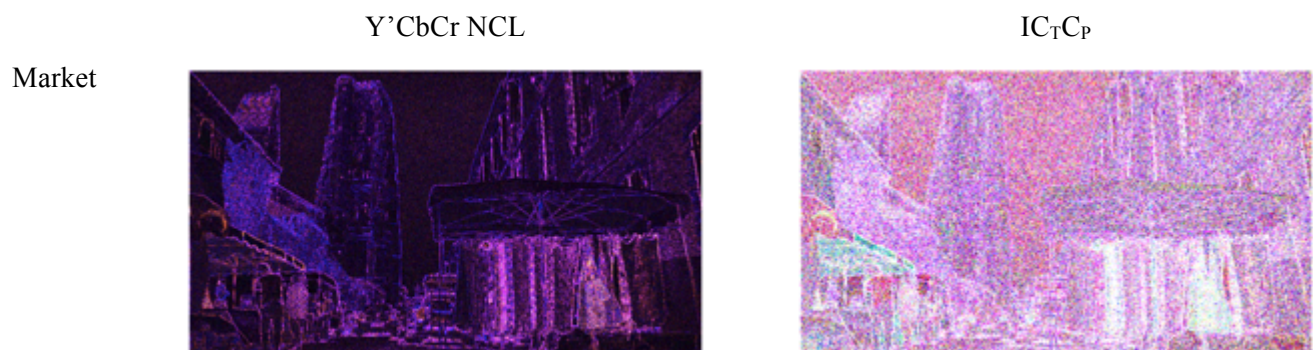
Example image patches comparing 4:4:4 to 4:2:0 chroma sampling in the Y'CbCr NCL and IC_TC_P domain options of BT.HDR are included in this document. From the image patches provided in this document, the authors notice that IC_TC_P space appears to exhibit less correlated error on natural video content, compared to Y'CbCr NCL. Test on the Samsung JS9500 display at the meeting will be offered. Matlab code is also provided to recreate the test patterns and process the CfE video clips used in the HDR/WCG adhoc experiments.

1 Introduction

The IC_TC_P “color space” included in the draft BT.HDR [1] is purported [2] to exhibit less chroma visible artifacts in linear chroma resampling algorithms. The IC_TC_P processed image patches show less correlation, but may also spread the error into textures or flat regions rather than concentrate along edges as the Y'CbCr NCL processing.

2 Image examples

Examples processed with 6-tap Lanczos chroma resampling filters from five of the ten CfE clips are given below. Images are auto normalized to show edge structure; intensity is not on the same scale between the left and right columns, but is relative within each image.

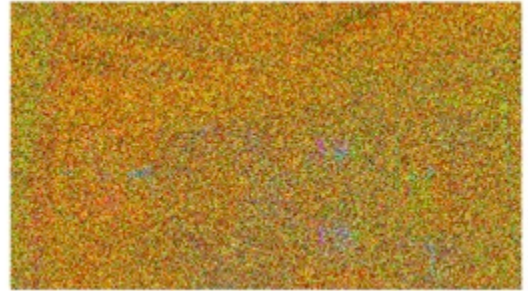


Bike
Sparklers

Y'CbCr NCL

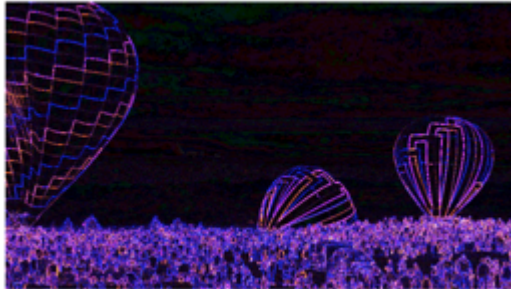


IC_TC_P

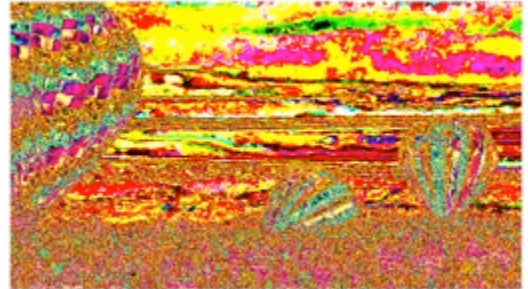


Balloon
Festival

Y'CbCr NCL

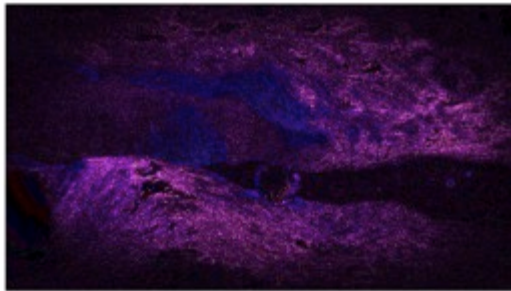


IC_TC_P

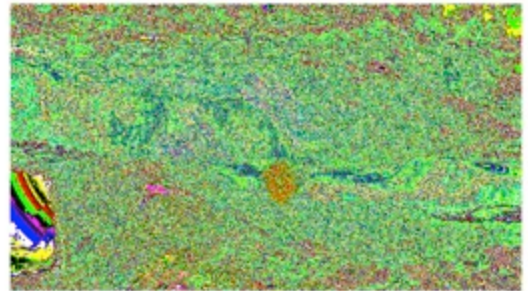


Tibul

Y'CbCr NCL

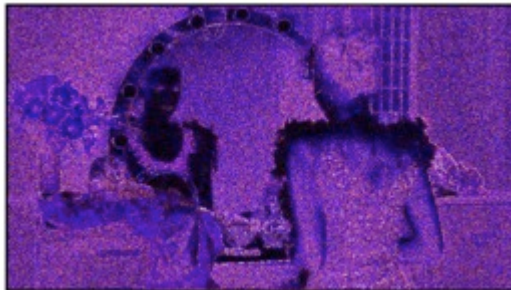


IC_TC_P

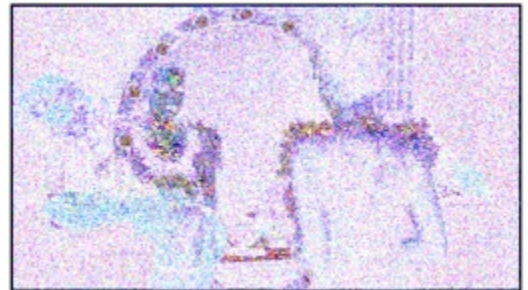


ShowGirl

Y'CbCr NCL



IC_TC_P



3 Conclusions

Conclusions should be drawn from visual testing [to be documented at meeting], and account for all the processing from image file to display should be considered. Compression studies are suggested to be conducted in JCT with particular attention paid to how block level tools are selected by HM reference encoder along areas of significant edge energy.

4 References

- [1] ITU-R WP6C, “Draft new recommendation ITU-R BT.[HDR-TV]”, [R15-SG06-C-0039!!MSW-E.docx](#) 10 February 2016.
- [2] J. Foehlich, T. Kunkel, R. Atkins, J. Pytlarz, S. Daly, A. Schilling, “Encoding Color Difference Signals for High Dynamic Range and Wide Gamut Imagery”, IS&T Color and Imaging Conference, October 2015.