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| **Joint Collaborative Team on Video Coding (JCT-VC)**  **of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11**  16th Meeting: San José, US, 9–17Jan. 2014 | Document: JCTVC-P0013 |

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| *Title:* | **JCT-VC AHG report: SHVC inter-layer filtering (AHG13)** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | AHG report | | |
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| *Source:* | AhG 13 | | |

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# Abstract

This document reports on the work of the JCT-VC AHG on **SHVC inter-layer filtering** (AHG13) between the 15th JCT-VC meeting in Geneva, Switzerland, (22 Oct – 1 Nov. 2013) and 16th JCT-VC meeting in San Jose, US, (9 – 17 Jan. 2014), and lists the related input documents.

# Mandate

**SHVC inter-layer filtering (AHG13)**

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* Study alternative upsampling and downsampling filters for spatial scalability.
* Study the effect of taking into account chroma position alignment during resampling processing.
* Study re-sampling process modification related to extracting regions of interest.
* Discuss and identify additional issues related to inter-layer filtering.

# Activity related to mandates and test results summary

There have not been discussions related to the mandates of this ad-hoc group over the reflector between the 15th JCT-VC meeting and the 16th JCT-VC meeting. However, there were significant activities in the area of inter-layer filtering within the SCE1 core experiment (2 contributions) and in 4 non-SCE1 contributions. In addition to re-sampling filter different variants of color-gamut and bit-depth conversion are studied.

Performance effect of accurate taking into account chroma position alignment during re-sampling processing was studied. There is one contribution on this issue.

There is one contribution about extracting region of interest. Modified scale and reference position derivation process as well as the associated new parameters are proposed.

Field to frame scalability requires re-sampling process modification and phase off-set signaling proposed in 3 contributions.

# List of related contributions

[JCTVC-P0128](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8616) SCE1: Results on Core Experiment on Color Gamut and Bit-Depth Scalability, tests 1A & 1B [P.Bordes, P.Andrivon, E.Francois (Technicolor)]

[JCTVC-P0186](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8674) SCE1: Combined bit-depth and color gamut conversion with 3D LUT for SHVC color gamut scalability [Y. He, Y. Ye, J. Dong (InterDigital)]

[JCTVC-P0063](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8551) Non-SCE1: Asymmetric 3D LUT for Color Gamut Scalability [X. Li, J. Chen, M. Karczewicz (Qualcomm)]

[JCTVC-P0124](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8612) Non-SCE1: Color gamut scalability using modified weighted prediction [A. Aminlou, K. Ugur, M. M. Hannuksela (Nokia)]

[JCTVC-P0197](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8685) Non-SCE1: improved color gamut scalability [Y.W. He, Y. Ye, J. Dong (InterDigital), X. Li, J. Chen, M. Karczewicz (Qualcomm)] [late]

[JCTVC-P0235](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8724) Non-SCE1: Trade-off between coding efficiency and buffer size with the 3D-LUT-based method for Color Gamut Scalability [K Sato (Sony)] [late]

[JCTVC-P0164](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8652) AHG13: chroma phase offset for SHVC resampling process [K. Rapaka, J. Chen, M. Karczewicz (Qualcomm)]

[JCTVC-P0177](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8665) On handling re-sampling phase offsets with fixed filters [K. Minoo, D. Baylon, A. Luthra (ARRIS)]

[JCTVC-P0215](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8703) Tile Based Resampling for SHVC [R. Skupin, K. Suehring, Y. Sanchez, T. Schierl (Fraunhofer HHI)]

[JCTVC-P0049](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8537) AHG 13: Scale and reference position derivation for sub-region extraction [T. Yamamoto, T. Tsukuba, T. Ikai (Sharp)]

[JCTVC-P0163](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8651) AHG15: Interlaced to progressive scalability for SHVC hybrid codec use case [Y. Ye, Y. He, Y.W. He (InterDigital)]

[JCTVC-P0165](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8653) Interlaced to progressive scalability in SHVC [J. Chen, K. Rapaka, Y.-K. Wang, M. Karczewicz (Qualcomm)]

[JCTVC-P0175](http://phenix.it-sudparis.eu/jct/doc_end_user/current_document.php?id=8663) On field to frame scalability [K. Minoo, D. Baylon, A. Luthra (ARRIS)]

# Recommendations

* Review related contributions