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| **ITU – Telecommunications Standardization Sector**STUDY GROUP 21 Question C/16**Video Coding Experts Group (VCEG)**75th Meeting: 2-8 November 2024, Kemer, TR | Document VCEG-BW07-v1 |

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| Question: | C/16 SG21 (VCEG) |
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| Title: | **Comments on setting a timeline for a next generation video coding standard** |
| Purpose: | Proposal |

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# Abstract

The authoring companies believe that it is premature to set a detailed timeline before a reasonable set of requirements has been agreed.

# Introduction

The desire of agreeing to a detailed timeline, including a date for public announcement of the intention of ITU/ISO/IEC to produce a next generation video coding standard, surprised us at the last meeting. In the interim, we had an opportunity to coordinate, and we can document the signing organizations’ positions as follows:

## Requirements first

We believe that VCEG and MPEG Requirements need to establish a reasonable set of requirements, based on identified market needs, before we agree on a detailed timeline. To us, that seems self-explanatory—how can one decide on a timeline without having at least an initial understanding of the amount of work that needs to be done? And how can that amount of work be estimated without having an agreed set of requirements? We have already seen a number of requirements documents, and expect more to be submitted to this meeting and perhaps future meetings.

## Possible industry workshop @ ITU, Jan 2025

We believe that neither ITU nor MPEG should finalize their requirements for a future generation video coding standard, nor set a timeline, before having received requirements from beyond narrow video codec standardization circles. The planned workshop in January 2025 offers a great opportunity to collect and consolidate such requirements.

## Exploration on test conditions beyond those currently in use in JVET

Based on the outcome of the requirements discussion, JVET will likely need to establish test conditions outside the classic coding efficiency scenarios. Examples of those possibly needed test conditions include error resilience (for ULD), and NN-related complexity metrics that are not based on CPU hours/days per picture. We also believe that JVET needs to address overtraining concerns (perhaps through novel test material and additional test scenarios), and the reportedly poor performance of ECM when used in complex 8K sequences reported in JVET-AH0048 [1], as well as gaming sequences reported in JVET-AJ0015 [2].

## Need for CfE

We believe we need a CfE to address the feasibility of established requirements using updated test conditions and materials. Multiple iterations of evidence checks may be needed to align requirements and exploration solutions, and some of this process can be handled in the CfE.

## Need for CfP

We believe we need a CfP to select a reference software.

## No official public confirmation of intention to work on next gen before 2027

Given our other requirements on the timeline, we see no need to rush into a public confirmation of the ITU/ISO/IEC’s intention to work on a new video coding standard. If such a confirmation becomes necessary, we prefer to focus on an end date. Discussion about that end date is probably best conducted only after the proposed Jan 2025 workshop and/or conclusion of a possible MPEG market needs study.

## Suggested JVET exploration focus until CfE/CfP

The authoring companies suggest JVET should focus on the following actions, obviously in addition to activities currently ongoing:

* Investigating reported mismatches between subjective and objective quality [3]; understand the reasons for such mismatches and devise technology that a) helps to detect such mismatches in the future; and b) identifies those tools responsible for the mismatch, and fixes for them with an emphasis on subjective quality improvement.
* Develop test conditions considering limited complexity (emulating real-time) encoding.
* Develop test conditions for Ultra-Low Delay Coding (as that seems to be a topic generally supported by the community and not adequately addressed now).

# References

1. Y. Sun, Y. Zhao, E. Alshina (Huawei), Y. Li (CMG), Q. Zhang (ABP), AHG4: ECM test results on some 8K HDR sequences, JVET-AH0048
2. S. Puri, J. Sauer (co-chairs), R. Chernyak, A. Duenas, L. Wang (vice chairs), JVET AHG report: Gaming content compression (AHG15), JVET-AJ0015
3. V. Baroncini, J.-R. Ohm, M. Wien Visual quality comparison of ECM/VTM encoding [JVET-AH2029](https://jvet-experts.org/doc_end_user/current_document.php?id=14274)

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