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| **ITU – Telecommunications Standardization Sector**  STUDY GROUP 21 Question 6  **Video Coding Experts Group (VCEG)**  76th Meeting: 27 March – 4 April 2025, by teleconference | Document VCEG-BX01-v2 |

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| Question: | 6/21 (VCEG) | | |
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| Title: | **AHG report on coding of medical and general waveform data** | | |
| Purpose: | AHG report | | |

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# Abstract

This document contains the AHG report on the coding of medical and general waveform data

# Introduction

The mandates of the AHG are as follows:

* Update the H.BWC algorithm description document
* Improve the draft specification of H.BWC
* Update the H.BWC reference software with coordination by the H.BWC software coordinators
* Identify additional candidate test data for experimentation, including additional types (PPG, multimodal, seismic data, etc.)
* Communicate informally with DICOM on the status and plans of H.BWC
* Coordinate with DICOM to engage medical experts in evaluations of H.BWC's compression performance
* Produce anchor encoding results using the latest version of reference software and the CTC configurations
* Conduct tool assessment of existing coding tools in the test model and report the assessment results
* Study complexity trade-offs and define associated configurations of the test model in support of envisioned use cases

A first version of the H.BWC reference software was finalized by the software coordinators as BWC.1.0. Configuration files for the combined and for the independent channel coding according to the CTC as well as anchor results were also provided by the software coordinators. See Document VCEG-BX09.

Experts from Q6/SG21 participated in the meetings of DICOM WG32 and provided information about the progress of the H.BWC development. Also, experts from DICOM WG32 started to investigate the functionalities of the provided H.BWC reference software.

New EMG data were provided by DICOM WG 32 experts. The new EMG dataset can be downloaded from ftp.hhi.fraunhofer.de in folders “DICOM\_needle EMG\_Halford” and “DICOM\_needle EMG data\_Halford\_revised”. Login-credentials can be obtained upon request.

The following documents related to the core experiment for H.BWC have been registered:

* VCEG-BX02 [J. M. Seong (ETRI)] Core experiment on selective shaping for H.BWC
* VCEG-BX03 [J. M. Seong (ETRI)] Core experiment on LP-based block-matching prediction for H.BWC
* VCEG-BX04 [R. Krasinski, S. Jelfs (Philips)] Status on core experiment on wavelet transform for H.BWC
* VCEG-BX13 [C. Helmrich et al. (Fraunhofer HHI)] Core experiment on deblocking for H.BWC

The following documents related to the mandates of the AHG have been registered:

* VCEG-BX05 [R. Krasinski, S. Jelfs (Philips)] On the test datasets used for the CTCs for H.BWC
* VCEG-BX06 [R. Krasinski, S. Jelfs (Philips)] Use cases for biomedical waveform coding
* VCEG-BX07 [C. Fersch, P. Setiawan (Dolby)] Updates and Corrections to H.BWC High Level Syntax
* VCEG-BX10 [C. Helmrich et al. (Fraunhofer HHI)] Replacement of DST-II by DST-IV in biomedical waveform coding
* VCEG-BX11[C. Helmrich et al. (Fraunhofer HHI)] Description and correction of errors in H.BWC test model since January meeting
* VCEG-BX12 [C. Helmrich et al. (Fraunhofer HHI)] Speedup of H.BWC reference software via pre-search and predictor optimization
* VCEG-BX09 [P. Haase , P. Setiawan (Dolby)] Report on reference software development for H.BWC
* VCEG-BX14 [J. Pfaff et al. (Fraunhofer HHI)] Harmonization of entropy coding methods for H.BWC
* VCEG-BX15 [T. Nguyen et al. (Fraunhofer HHI)] Entropy coding modifications for H.BWC
* VCEG-BX16 [L. Holtmeier et al. (Fraunhofer HHI)] Description of the application of high-level syntax for reordering and grouping of channels for EEG signals
* VCEG-BX17 [C. Fersch, K. Kjörling, J. Klejsa, H.-M. Lehtonen, H. Mundt (Dolby)] Automated expert tuning for H.BWC
* VCEG-BX18 [C. Fersch, K. Kjörling, J. Klejsa, H.-M. Lehtonen, H. Mundt (Dolby)] H.BWC Predictor Coding Tool Assessment

# Conclusion

It is recommended by the AHG chairs to review all abovementioned input contributions.

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