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| **ITU – Telecommunications Standardization Sector**  STUDY GROUP 16 Question 6  **Video Coding Experts Group (VCEG)**  73rd Meeting: 17-26 January 2024, Teleconference | Document VCEG-BU02 |

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| Question: | Q.6/SG16 (VCEG) | | |
| Source: | **Jonathan Pfaff (Fraunhofer HHI)** | Tel:  Email: | [jonathan.pfaff @hhi.fraunhofer.de](mailto:thomas.wiegand@hhi.fraunhofer.de) |
| Title: | **Report of AHG on coding of medical and general waveform data** | | |
| Purpose: | AHG report | | |

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1. **Introduction**

The mandates of the AHG are:

* Perform gap analysis
* Study requirements
* Collect example signal data for experimentation
* Produce a draft A.1 justification for development of a Recommendation on the subject
* Communicate with DICOM on the above goals

1. **Activities**

The VCEG email reflector was used for communication related to the AHG.

As agreed during the 72nd VCEG meeting in Hannover, a continuation of the investigation described inVCEG-BT05 has been performed. The results of this investigation were submitted as input document VCEG-BU01 to the 73rd VCEG meeting. The latter document was also sent around via the VCEG email reflector on December 1st .   
In VCEG-BU01, results for the Extended HE-AAC audio codec, when operated without psychoacoustic encoder optimizations and encoding each channel individually, are reported on the Ozdemir EMG dataset (4 channels per sequence) and the MUSC EEG set (up to 276 channels per sequence). The performances of Extended HE-AAC with and without a restriction to using only short-transform encoding is compared as well.

A response to the Call for Evidence on the coding of biomedical waveform data has been submitted by Fraunhofer HHI. For this response, the bit streams, the decoder executable and detailed experimental results were uploaded to the FTP server specified in the Call for Evidence while a description of the technology as well as an overview of the experimental results were submitted as an input contribution to the 73rd  VCEG meeting as VCEG-BU03.

Some VCEG experts reported their participation in the meetings of the DICOM WG-32 group as guest members. According to these experts, in the meeting on December 21st, Fraunhofer HHI presented compression results for the coding of biomedical waveform data similar to the ones shown in document VCEG-BU03. It was expressed by DICOM experts that bit-rate savings over the state of the art similar to those reported by Fraunhofer HHI would basically meet DICOM WG-32’s requirements. Moreover, it was commented by DICOM experts that a particular focus should be put on the near-lossless setting. Also, DICOM experts expressed their wish for VCEG to finish a possible standard on the compression of biomedical waveform data within a foreseeable time frame.

# Recommendations

The AHG recommends

* To review the input contributions VCEG-BU01 and VCEG-BU03
* To study existing lossy audio codecs with respect to their suitability for compression of medical and general waveform data
* To issue a Call for Proposals on the compression of biomedical waveform data
* To communicate with DICOM on the above goals

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