OSAC RESEARCH NEEDS ASSESSMENT FORM

Title of research need: Evaluation of differences in image quality and metadata from native format files compared to open video format files exported from the same digital video recorder.

Describe the need: Current best practices for forensic video acquisition state that the acquisition of native format video files should take precedence over the acquisition of open file format video files. Little research has been conducted to evaluate the quality and metadata of the native format files compared to that of open video format files available from the same digital video recorder. The native video format refers to the original video data recorded by a system which may or may not be in a proprietary format. Research into differences between video formats available to a given recording system will provide insight in determining if current best practice recommendations for video acquisition should be updated.

Keyword(s): Video forensics, video quality, video acquisition, native file format, open file format, proprietary

Submitting subcommittee(s): VITAL   **Date Approved:** 28 June 2023

Background Information:

1. Does this research need address a gap(s) in a current or planned standard? (ex.: Field identification system for on scene opioid detection and confirmation)

It addresses the need to determine the best formats for export of video data for each recording system.

2. Are you aware of any ongoing research that may address this research need that has not yet been published (e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

The video task group is not aware of any ongoing research into this topic.

3. Key bibliographic references relating to this research need: (ex.: Toll, L., Standifer, K. M., Massotte, D., eds. (2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

Bruehs, Walter E., and Dorothy Stout. "Quantifying and ranking quality for acquired recordings on digital video recorders." Journal of Forensic Sciences 65.4 (2020): 1155-1168.

Scientific Working Group on Digital Evidence. (2018). SWGDE Best Practices for Data Acquisition from Digital Video Recorders: https://drive.google.com/file/d/1Xrb__62HF5A35du87KVkn83p92Bzm_yK/view

Wales, G. S., Smith, J. M., Lacey, D. S., & Grigoras, C. (2023). Multimedia stream hashing: A forensic method for content verification. Journal of Forensic Sciences, 68(1), 289-300.

4. Review the annual operational/research needs published by the National Institute of Justice (NIJ) at https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest? Is your research need identified by NIJ?

No

5. In what ways would the research results improve current laboratory capabilities?

This research will inform practitioners' decisions when acquiring data from video recording systems, potentially increasing efficiency and providing additional metadata analysis opportunities.

6. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

This research would assist in the understanding and identification of the best evidence available for export.

7. In what ways would the research results improve services to the criminal justice system?

If research finds that the acquisition of native format video is not preferable to the acquisition of open format video, best practices could be updated. The acquisition of open format video in lieu of native format video could help to ease the difficulty in playback of proprietary video files by offering the open format as a viable export option from recording systems.

8. Status assessment (I, II, III, or IV):

I

		Major gap in current knowledge	Minor gap in current knowledge
No or limited current research is being conducted		I	III
Existing current research is being conducted		II	IV

This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.