



Digital & Multimedia Section – 2009

B18 A Subjective Video Quality Test Method for the Assessment of Recorded Surveillance Video

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After attending this presentation, attendees will learn of a new test method developed by the National Telecommunications and Information Administration (NTIA) that is suitable for assessing the subjective video quality of surveillance (and other task-based) video.

Attendees will also understand the unique problems associated with assessing the quality of surveillance video and why extant testing recommendations on subjective video quality assessment (developed by the International Telecommunication Union (ITU)), cannot be applied to the surveillance video testing.

This presentation will impact the forensic science community by giving the forensic video community a standardized method to assess the quality of surveillance video. Law enforcement organizations have noted problems arising from low quality surveillance video and have been developing guidelines that aim to improve the quality of surveillance video; yet no method exists that can be used to measure this quality. The test method described in this presentation provides a new testing method, which may be used to measure the subjective video quality of surveillance (and other task-based) video.

The quality of surveillance video impacts our law enforcement communities, courts, and the public. Poor surveillance video quality could result in critical evidence being dismissed and criminals remaining at large or being set free.

The quality of surveillance video is of major importance to the law enforcement community. Quality is defined as the minimum acceptable levels of impairments that make it possible for law enforcement to utilize the recorded surveillance video to do its job and identify images in the video that are pertinent to an investigation and use those images to help identify, apprehend, and prosecute criminals. Once a crime is committed, the surveillance video may become critical evidence for the purpose of identifying what happened and who and what was involved in the crime. The surveillance video helps law enforcement piece together the events, objects, and individuals related to the crime and apprehend and prosecute the suspect(s). The surveillance video is essential evidence in many criminal cases.

Low quality surveillance video is a problem for the law enforcement community because it impedes its ability to do its job. Low quality recordings do not give law enforcement the level of detail needed to identify a suspect or an object or to piece together the events of a crime. Many groups have been looking at improving this quality. The National Telecommunications and Information Administration's (NTIA) Institute for Telecommunications Sciences (ITS) has undertaken research in this area. Part of this research resulted in the development of a subjective video quality test method suitable to measure a video analyst's assessment of that quality.

Methods for subjective video quality testing have been proposed by the International Telecommunication Union (ITU), the Motion Pictures Expert Group (MPEG), military image quality researchers, and others over the previous decades. The method described in this abstract synthesizes recommendations of these groups, along with recommendations by law enforcement video analysts, and proposes a new test method which enables the subjective quality of surveillance video to be measured in a standardized manner.

The unique problems associated with assessing the quality of surveillance video are presented. Reasons why extant testing recommendations on subjective video quality assessment (developed by the ITU) cannot be applied to the surveillance video testing are also discussed.

This test method will benefit the law enforcement community and video quality researchers because it provides a standardized method to assess the effectiveness of guidelines and recommendations which were developed to improve the quality of surveillance video. This method has been presented to the International Telecommunication Union (ITU), and is currently a draft recommendation by the ITU's Study Group 9.

Surveillance Video Quality, Subjective Video Quality, Video Quality Assessment