OBJECTIVE EVALUATION OF VIDEO PERFORMANCE OVER SATELLITE NETWORKS

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Concepts and methods for defining and measuring Quality of Service (QoS) have been applied in developing a tool that provides objective and repeatable measurements of the quality of digital video signals. One can, alternatively, think of this as a tool with which to measure the performance of systems that process and/or store digital video signals, the performance of networks that transport digital video signals, and the quality of the services that are provided by such systems and networks. This tool, known as the Transportable Video Quality Measurement System or TVQMS is assembled from readily-available hardware components and utilizes signal analysis techniques that have been developed, and are patented, by ITS engineers. The software that defines and controls the analysis process uses statistically-based information that is measured or computed from signal information contained in exactly-defined regions of sequential video frames from the input (or reference) and output (or test) video scenes. The system is transportable (but not a real-time capability), so measurements can be performed at any location, not just in our laboratory.

The objectives for this talk are, first, to describe the hardware aspects of the TVQMS and show how it has been packaged to make it easy to transport to any test location. Secondly (and the greater emphasis will be on this objective), the measurements that can be made with the system and the performance or quality information that is obtained from the measurements will be explained. Finally, an experiment scenario that could produce results that would be interesting and useful in developing and improving standards for ATM over satellite networks will be suggested, along with mention of some other possible applications for the video quality measurement system.