Abstract

In this work, a methodology for objective evaluation of the quality of video programs, without reference, recording these programs in the users' residence using a video camera is presented. The methodology is based on the use of a digital watermark embedded in the original program. The watermark is invisible to the user, but capturable by the video camera. The recorded video is handled by specific software that evaluates the watermark degradation. The measure of degradation of this watermark is used to estimate the quality of the video broadcasting system. A case study is presented to validate the methodology. The results of video quality metrics using this methodology were compared to a standardized full reference metrics and the linear correlation between these metrics was superior to 93%, which indicates a high convergence. The results of video quality metrics were also compared to a pixel based difference metrics, PSNR (Peak Signal to Noise Ratio) and the linear correlation was superior to 99%.

**Index Terms**

Computer Science  
Multimedia

**Keywords**

video quality  quality metrics  human visual system  modulation transfer function