Refereed Publications

Mark McFarland, P.E. | Forensic Electrical & Telecommunications Engineer

1. **“Distracted Driving: Determining Cell Phone Usage from Forensic Cellular Records”**

   This paper presents an analysis of an alleged texting-while-driving collision case involving cellular call records.

   https://journal.nafe.org/ojs/index.php/nafe/article/view/893/902

2. **“In-Building LTE Testing at the University of Colorado”**

   Indoor coverage was measured using the PSCR Band 14 LTE outdoor macro network.

   https://its.ntia.gov/publications/download/TR-15-518.pdf

3. **“Effect of Broadband Radio Service Reallocation on 2900–3100 MHz Band Marine Radars: Front-end Overload”**

   Signals from the BRS base stations can potentially cause the radar front-end to overload and cause interference.

   https://its.ntia.gov/publications/download/TR-15-515.pdf

4. **“Characterizing an S-band Marine Radar Receiver in the Presence of Interference”**

   Characterizing the effects that out-of-band interference has on the performance of an S-band marine radar receiver's IF output normally requires non-linear network analysis.

   https://its.ntia.gov/umbraco/surface/download/publication?reportNumber=mcfarlandEMC2012.pdf

5. **“A fast-fading mobile channel measurement system”**

   The system is designed to measure the characteristics of a narrowband mobile radio channel.

   https://its.ntia.gov/publications/download/johnkEMC2012.pdf

6. **“Relating Audio and Video Quality Using CIF Video”**

   NTIA/ITS has conducted a series of studies to quantify the effects that individual audio and video qualities have on the overall Mean Opinion Score (MOS) for a given set of audiovisual clips.

   https://its.ntia.gov/publications/download/10-472.pdf

7. **“High-resolution propagation measurements using biconical antennas and signal processing”**

   This paper describes how commercially-available EMC biconical antennas can be used to perform high-resolution propagation measurements.

   https://zenodo.org/record/1274322/files/article.pdf

8. **“Task-Based Tactical and Surveillance Video Quality Tests”**

   This report describes laboratory studies of the quality required for public safety video applications: tactical, live surveillance, and recorded surveillance.

   https://www.hsdl.org/c/view?docid=16117

9. **“Multimedia Synchronization Study”**

   ITS is conducting a series of studies to quantify the effects of the separate audio and video compression qualities, and the differential delay in their synchronization, to the perceived aesthetic quality of a multimedia signal.

   https://its.ntia.gov/publications/download/TR-10-464.pdf

10. **“Emission Measurement Results for a Cellular and PCS Signal-Jamming Transmitter”**

    This report describes emission measurements on a denial-of-service (jammer) transmitter operating in the 800 MHz and 1900 MHz cellular and PCS bands.

    https://its.ntia.gov/publications/download/10-465.pdf

11. **“A subjective video quality test method for the assessment of recorded surveillance video”**

    The quality of surveillance video is of major importance to the law enforcement community.

    https://www.aafs.org/sites/default/files/media/documents/AAFS-2009-B18.pdf

12. **“Subjective video quality assessment methods for recognition tasks”**

    To develop accurate objective measurements (models) for video quality assessment, subjective data is traditionally collected via human subject testing.

    https://www.spiedigitallibrary.org/conference-proceedings-of-spie/7240/1/Subjective-video-quality-assessment-methods-for-recognition-tasks/10.1117/12.805371.short

13. **“ITU-T, Subjective Video Quality Assessment Methods for Recognition Tasks, International Telecommunications Union– Telecommunication Standardization Sector”**

    The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs).

    https://discoveryengineering.net/wp-content/uploads/2026/03/ITU-T-Subjective-Video-Quality-Assessment-Methods-for-Recognition-Tasks-International-Telecommunications-Union–Telecommunication-Standardization-Sector.pdf

14. **“Batch Video Quality Metric (BVQM) User's Manual”**

    BVQM provides a graphical user interface (GUI) to select the video clips you want to batch process. Processing consists of calibrating the processed video clips and calculating their associated video quality metrics.

    https://its.ntia.gov/publications/download/HB-08-441b.pdf