



Engineering Sciences Section - 2016

D23 Witness Identification Under Low Light-Level Conditions: A Case Study

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After attending this presentation, attendees will be aware of a case study in which the defense in a capital murder case unsuccessfully argued that the defendant shooter was not able to identify his victim as a police officer under the low light-level conditions that they alleged existed at the scene of the crime.

This presentation will impact the forensic science community by increasing awareness regarding nighttime visibility, mesopic vision, photometry, illumination, and the pitfalls associated with trying to use photography as evidence to demonstrate to a jury what an individual could or could not see under low light-level conditions.

The subject case involves the shooting death of Officer Travis Murphy by defendant Danny Martinez in a Phoenix, AZ, residential neighborhood at approximately 1:30 a.m. on May 26, 2010. A defense argument was that the defendant did not know he was shooting a police officer because of the low light-level conditions that existed when he fired his shots. In his report, one of two visibility and illumination experts for the defense stated the following: "Therefore, based on my measurements and observations and with reasonable scientific certainty, I believe that the shooter could have had difficulty in visually determining whether the decedent was a police officer because of low light levels and because of the disability glare from either flashlight that the decedent might have used." The bases for his opinion are photometric measurements and observations at a recreation of the crime scene in February 2015. This expert additionally made two sets of four bracketed-exposure images from both the vantage point of the shooter and of the officer. Referring to an exhibit of two photographs in his report, he stated: "I selected the most realistic exposure from the four exposures for each scene for this exhibit."

An expert witness was retained by the prosecution to review and possibly rebut the analysis and testimony of the defense experts. Subsequent to a pre-trial motion to exclude the defense expert's nighttime photographs, they were withdrawn as evidence. Testimony by the prosecution's expert witness at a pre-trial hearing and as a rebuttal witness at trial concentrated mainly on changes in measured illuminance levels that occurred between the time of the crime in 2010 and both experts' separate inspections in early 2015, as well as the contribution of a 97% full moon that was visible on the night of the crime.

The measured illumination levels and a description of the level of detail that can be seen by an observer under low levels of illumination was an important factor in helping the jury decide whether or not the defendant could identify his victim as a police officer.

Witness Identification, Visibility, Photography