### Title and Subtitle
An Analysis of Low-Beam and High-Beam Headlighting Performance in the U.S.: 1997-2011

### Abstract
This study presented (1) an examination of the photometric trends over a 15-year span from 1997 to 2011 for tungsten-halogen low beams in the U.S., and (2) an analysis of tungsten-halogen high-beam performance from 2000 to 2011.

For the low-beam samples, there was an increase in intensities throughout most of the central beam pattern from 1997 (the oldest sample) to 2011 (the newest sample), resulting in more illumination on the roadway at most locations. The 2011 sample improved at all test points examined, with increases in intensity at all three visibility test points, and the glare test point showing a small decrease from 1997. The 2011 sample also generally had higher intensities directed toward each sign location on straight roads and left curves, though the intensities were generally lower for signs on right curves.

For the high-beam samples, there was an increase in intensities directed toward the region surrounding H-V from 2000 (the oldest sample) to 2011 (the newest sample), resulting in more illumination at intermediate and far distances. The 2011 sample showed improvements (or no change) over the 2000 sample for the visibility test points examined.