



Illuminating
ENGINEERING SOCIETY

RECOMMENDED PRACTICE:
OFF-ROADWAY SIGN LUMINANCE
AN AMERICAN NATIONAL STANDARD



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Publication of this Technical Memorandum
has been approved by IES.
Suggestions for revisions
should be directed to IES.

Prepared for IES
By the Outdoor Environmental Lighting Committee



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1.0 Introduction and Scope

1.1 Introduction

The effect on the community and environment should be carefully weighed whenever lighting of off-roadway signs is considered. Lighting should maintain the minimum luminance required for visibility and be extinguished when no longer needed, to minimize the negative impact of glare, light trespass, sky glow, animal attraction, and driver distraction. The recommendations in this document include restrictions on maximum sign luminance; lower luminance may be desirable and appropriate, depending on the graphic content of the sign and the background luminance of the surroundings. The design of the graphic content of the sign contributes prominently to the visibility of the sign and should be considered. In general, light backgrounds and dark text produce more glare, light trespass, and sky glow than dark backgrounds and light text.²

In developing the recommendations included in this document, the transient adaption of the human eye has been a primary focus and concern. The human eye is only capable of handling a limited range of luminances at any given time, spanning a range of two to four log units.³ This is the range for adaptation via synaptic interaction, a very fast process. A wider range requires additional adaptation on the part of the visual system, such as pupil size change and, eventually, pigment bleaching, which happen more slowly and can take longer to recover from. While the adaption to a brighter light source happens relatively quickly, adapting to a lower lighting level takes much longer. During this time, visual acuity is diminished; therefore, rapid changes in contrast ratios should be avoided.⁴ In addition, the time required to readapt to lower illuminance levels increases as the eye ages.⁵

1.2 Scope

These recommendations provide guidelines only for the lighting of signs that are located off the right of way of roadways—in other words, all signs not regulated by a federal, state, provincial, or local jurisdiction—and includes on- and off-premise, internally and externally illuminated, and electronic signs. For recommendations for roadway signs used for vehicle or pedestrian

navigation, the reader is referred to *ANSI/IES RP-8-18, Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting*.¹

2.0 Definitions

animated sign: A sign employing actual motion, the illusion of motion, or light and/or color changes achieved through mechanical, electrical, or electronic means.

billboard: See *outdoor advertising sign*.

building sign: A sign that is applied or affixed to a building.

candela per square meter (cd/m²): The SI (metric) unit used to describe the luminance of a light source or of an illuminated surface that reflects or transmits light. Also referred to as a *nit*.

changeable sign: A sign with the capability of content change by means of manual or remote input, includes the following types:

- manually activated: The message copy or content can be changed manually on a display surface.
- electrically activated: The message copy or content can be changed by means of remote, electrically energized, on-off switching combinations of alphabetic or pictographic components arranged on a display surface. Illumination may be integral to the components, such as characterized by lamps or other light-emitting devices, or it may be from an external light source designed to reflect off the changeable component display.

commercial outdoor advertising sign: A permanent off-premise sign erected, maintained or used in the outdoor environment for the purpose of providing copy area for commercial or noncommercial messages.

electric sign: Any sign activated or illuminated by means of electrical energy.