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American National Standard

for Roadway and Area Lighting Equipment—Solar Lighting Systems

Secretariat:

National Electrical Manufacturers Association

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Foreword

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1 Scope

This standard defines the electrical and mechanical requirements of off-grid solar photovoltaic (PV) lighting systems for use as roadway and area lighting equipment. This standard does not include grid-connected systems, emergency equipment, or Department of Transportation (DOT) mandated signs or lights. The system configurations addressed by this standard are:

1.1 Luminaire-Integral: A luminaire assembly composed of:

- A luminaire housing inclusive of mounting means to a pole or arm
- Solar power generation (e.g., a PV array or module)
- Energy storage (e.g., a battery)
- Charge and load (i.e., lighting) controllers
- Wiring and interconnects
- Lighting subcomponents (e.g., LEDs, optics, drivers)
- Communications interface (e.g., a wireless transmitter/receiver)

A luminaire-integral system can be considered an “all-in-one” solution generally ready to mount on an existing or dedicated pole or arm capable of supporting the entire system’s rated Effective Projected Area (EPA) and weight.

1.2 Pole-Integral: A pole assembly composed of:

- A pole, pole base, and component mounting elements such as an arm or brackets
- Solar power generation (e.g., a PV array or module)
- Energy storage (e.g., a battery)
- Charge and load (e.g., lighting) controllers
- Wiring and interconnects
- At least one luminaire, inclusive of housing and any lighting subcomponents
- Communications interface (e.g., a wireless transmitter/receiver)

A pole-integral system is a solution that generally has its subsystems mounted on or in the pole, more commonly on the pole exterior, and may be capable of supporting larger overall lighting electrical loads because of its ability to host larger luminaires, solar PV arrays, and batteries versus luminaire-integral solutions.

2 Normative References

This standard incorporates reference provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed below. For undated references, the latest edition of the publication referred to applies (including amendments).

AASHTO LTS-6	*Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*
AASHTO LRFDLTS-1	*LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*
ANSI C136.22	*American National Standard for Roadway and Area Lighting Equipment—Internal Labeling of Luminaires*
ANSI C136.25	*American National Standard for Roadway and Area Lighting Equipment—Ingress Protection (Resistance to Dust, Solid Objects, and Moisture) for Luminaire Enclosures*