ANSI C136.2-2023
A Revision of ANSI C136.2-2018

American National Standard for Roadway and Area Lighting Equipment—Dielectric Withstand and Electrical Transient Immunity Requirements

Secretariat:

National Electrical Manufacturers Association

Approved: September 26, 2023

American National Standards Institute, Inc.

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Published by

National Electrical Manufacturers Association
1300 North 17th Street, Suite 900
Rosslyn, VA 22209

www.nema.org

Printed in the United States of America.

Preface

In order to minimize overlapping requirements and to streamline compliance with standards, a joint effort between the C136 and C82 committees has been undertaken to align some of the requirements of the following documents:

- ANSI C136.2-2018 *American National Standard for Roadway and Area Lighting Equipment — Dielectric Withstand and Electrical Transient Immunity Requirements*
- ANSI C82.77-5-2017 *American National Standard for Lighting Equipment — Voltage Surge Requirements*

While both standards cover voltage surge limits and testing requirements, ANSI C136.2 specifically focuses on roadway and area lighting applications while ANSI C82.77-5 covers all types of lighting applications. Along with other updates and corrections, the latest edition of ANSI C82.77-5 incorporates the requirements and methods previously contained in Sections 7.1 through 7.3 and Tables 3 through 5 of ANSI C136.2-2018 specifically for roadway and outdoor area lighting to align the requirements.

Furthermore, the following clarifications and additions were made in ANSI C82.77-5-2023:

- Addition of Clause 1.6, “Test Methods and Requirements,” to standardize test methodology across all luminaire applications
- Addition of Clause 2.1, “General,” to standardize Ring Wave and Combination Wage surge tests
- Tables 5 through 18 were rearranged for better clarity

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Foreword

At the time this standard was approved, the ANSI C136 committee was composed of the following members:

Acuity Brands, Inc.
Alabama Power Company
Amphenol Canada Corp
Atlas Lighting Products, Inc
Brainer Consulting
Caltrans
City of Kansas City, Missouri
ClearWorld LLC
Cree Lighting
Current
DesignLights Consortium
DimOnOff Inc.
Dominion Energy SC
Dominion Energy VA
Duke Energy
Duke Energy Progress
EPRI
Excellence Opto, Inc.
FlexSol Lighting Solutions B.V.
Florida Power & Light Company
Georgia Power
Gootroo Consulting
Hancock Consulting
Hapco Aluminum Pole Products
Intermatic Incorporated
Intertek
Itron, Inc.
JEA
Kauffman Consulting, LLC
LED Roadway Lighting Ltd.
Legrand North America
Light Smart
Littelfuse, Inc.
Lumispec Consulting
Mississippi Power
National Grid
Pacific Northwest National Laboratory
PSEG Power
Realterm Energy
Signify North America Corporation
Solais Lighting Group
Stresscrete/King Luminaire
Sunrise Technologies, Inc.
Tampa Electric Company
TE Connectivity
Telematics Wireless
TESCO – The Eastern Specialty Company
Utility Metals Division of Fabricated Metals, LLC
Watthour Engineering Company, Inc.
Xcel Energy

1 General

1.1 Scope

This standard covers luminaires and control devices classified for up to 600-volt operation[1] and intended for use in roadway and area lighting applications.

This standard contains the minimum performance requirements and test procedures for evaluating luminaire and control equipment under test (EUTs) for the following:

a. Dielectric withstand
b. Electrical transient immunity

1.2 Limitations

The test procedures contained in this standard are designed to evaluate the performance of luminaires, control devices, and (as applicable) combinations of luminaires and control devices, for the purpose of facilitating consistent performance reporting of such equipment. The results of a given test procedure, including whether or not the EUT achieved the minimum performance requirements specified in this standard, are only valid for the EUT configuration evaluated.

Users are warned that different combinations of luminaires and control devices may perform differently, and specification or knowledge of the independent performance of both a specific luminaire and a specific control device does not necessarily predict or guarantee any level of performance for the specific combination of luminaire and control device. While EUT manufacturers may attempt to identify and report test results for combinations of luminaires and control devices that represent typical, or perhaps worst-case, conditions according to some logic, these results should be viewed as informative only, as specific combinations of a luminaire and control device may perform better or worse.

The test procedures contained in this standard are not designed to evaluate the performance of components, such as surge protective devices (SPDs) or other varistor-based modules. Test procedures for components are contained in other standards (e.g., UL 1449) that evaluate parameters related to electrical transient immunity performance and, importantly, require over-voltage testing.

1.3 Compliance Reporting

EUT manufacturers that choose to claim compliance with this standard in their literature shall note the EUT configuration and environmental conditions in the test reporting, including the following:

a. Three-wire (hot, neutral, protective earth) or two-wire (hot, neutral) electrical configuration[2]
b. Permanently installed (not intended to be removed) in-line fuses
c. Lamp, light engine, or other modular light source part number, if applicable
d. Modular ballast or driver part number, if applicable
e. Optional modular device part number(s), as applicable
f. Ambient temperature and relative humidity

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[1] Previous versions of ANSI C136.2 included separate requirements for luminaires classified for 250-volt and 5-kV operation. Luminaires classified for 250-volt operation are considered to be under the purview of this standard. For recommendations and/or requirements for 5-kV (i.e., series wired) luminaires, see other ANSI C136 standards, as appropriate, or continue to refer to ANSI C136.2-2004 (R2009).
[2] An EUT designed or otherwise intended for two-wire operation typically either does not have a protective earth connection or electrically shorts the protective earth and neutral connections within the EUT.