NEMA Standards Publication

ANSI C136.2-2015

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

National Electrical Manufacturers Association

ANSI C136.2-2015

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

Secretariat:

National Electrical Manufacturers Association

Approved November 3, 2015

American National Standards Institute, Inc.

NOTICE AND DISCLAIMER

The information in this publication was considered technically sound by the consensus of persons engaged in the development and approval of the document at the time it was developed. Consensus does not necessarily mean that there is unanimous agreement among every person participating in the development of this document.

American National Standards Institute (ANSI) standards and guideline publications, of which the document contained herein is one, are developed through a voluntary consensus standards development process. This process brings together volunteers and/or seeks out the views of persons who have an interest in the topic covered by this publication. While NEMA administers the process and establishes rules to promote fairness in the development of consensus, it does not write the document and it does not independently test, evaluate, or verify the accuracy or completeness of any information or the soundness of any judgments contained in its standards and guideline publications.

NEMA disclaims liability for any personal injury, property, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, application, or reliance on this document. NEMA disclaims and makes no guaranty or warranty, express or implied, as to the accuracy or completeness of any information published herein, and disclaims and makes no warranty that the information in this document will fulfill any of your particular purposes or needs. NEMA does not undertake to guarantee the performance of any individual manufacturer or seller's products or services by virtue of this standard or guide.

In publishing and making this document available, NEMA is not undertaking to render professional or other services for or on behalf of any person or entity, nor is NEMA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances. Information and other standards on the topic covered by this publication may be available from other sources, which the user may wish to consult for additional views or information not covered by this publication.

NEMA has no power, nor does it undertake to police or enforce compliance with the contents of this document. NEMA does not certify, test, or inspect products, designs, or installations for safety or health purposes. Any certification or other statement of compliance with any health or safety–related information in this document shall not be attributable to NEMA and is solely the responsibility of the certifier or maker of the statement.

AMERICAN NATIONAL STANDARD

Approval of an American National Standard requires verification by ANSI. ANSI states that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means significantly more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether they have approved the standards or not, from: manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards, and will under no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

Caution Notice: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

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.

This page intentionally left blank.

CONTENTS

TABLES

Foreword

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

Alabama Power Company
American Electric Lighting
Caltrans
Ceravision
City of Kansas City, Missouri
Cree, Inc.
Duke Energy
Duke Energy Florida
Eaton's Cooper Lighting
Edison Electric Institute
Electric Power Research Institute (EPRI)
EYE Lighting International of N.A., Inc.
Florida Power & Light Company
FP Outdoor Lighting Controls
FRE Composites (2005) Inc.
GE Lighting Systems
Georgia Power Company
GreenStar Products, Inc.
Gulf Power Company
Hapco Aluminum Pole Products
Holophane
Hubbell Lighting, Inc.
Inovus Solar
Intelligent Illuminations Inc.
Intertek USA, Inc.
JEA
Kauffman Consulting, LLC
LED Roadway Lighting Ltd.
LITES
Los Angeles Bureau of Street Lighting
LUXIM Corp.
Mississippi Power Company
National Grid
OSRAM SYLVANIA Inc.
Philips HADCO
Philips Lumec
PNNL-Battelle
Ripley Lighting Controls
ROAM/DTL
SELC Lighting
Sensus Metering
Silver Spring Networks
Sollux Consulting
South Carolina Electric & Gas
SouthConn Technologies, Inc.
Stresscrete/King Luminaire
TE Connectivity
Utility Metals Division of Fabricated Metals, LLC
Valmont Composite Structures
Vamas Engineering and Consultants
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 devices under test (DUTs) 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 DUT achieved the minimum performance requirements specified in this standard, are only valid for the DUT 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 DUT 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 Protection 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

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

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

---

1. Previous versions of ANSI C136.2 included separate requirements for luminaires classified for 250-volt and 5kV operation. Luminaires classified for 250 volt operation are considered to be under the purview of this standard. For recommendations and/or requirements for 5kV (i.e., series wired) luminaires, see other ANSI C136 standards, as appropriate, or continue to refer to ANSI C136.2-2004 (R2009).
2. A DUT 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 DUT.