



ANSI C82.18-2022

*American National Standard for Light-Emitting Diode Drivers—
Performance Characteristics*

Secretariat:

National Electrical Manufacturers Association

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American National Standards Institute, Inc.

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Foreword

This foreword is not part of ANSI C82.18-2022.

LED Drivers have been developed to support the LED transformation of lighting applications. The National Electrical Manufacturers Association (NEMA) developed an industry consensus document describing some basic performance requirements, titled *NEMA SSL-1 Electronic Drivers for LED Devices, Arrays, or Systems*. NEMA SSL-1 provided specifications and operating characteristics of non-integral electronic drivers (power supplies) for LED devices, arrays, or systems intended for general lighting applications.

The C82 committee developed a consensus document describing the LED drivers test methods; ANSI C82.16 *American National Standard for Light-Emitting Diode Drivers—Methods of Measurement*. ANSI C82.16 describes the procedures to be followed and the precautions to be taken in measuring the performance of LED drivers. The scope includes, but is not limited to, LED drivers with these characteristics:

- General lighting, exterior lighting, and roadway lighting applications
- Input supply voltage up to 600 VDC or 600 VAC (50 or 60 Hz)
- Output open-circuit voltage of 600 V or less
- Constant-current or constant-voltage DC output
- PWM LED drivers
- Fixed, variable (dimnable), pulse width modulation, or programmable (tunable) output power
- External (standalone) or internal (enclosed in luminaire)
- Energy efficiency
- Driver Standby Power

NEMA and C82 member testing experience, based on ANSI C82.16 methods, contributed to drafting this document. Thus, this new standard, ANSI C82.18 *American National Standard for Light-Emitting Diode Drivers—Performance Characteristics*, and ANSI C82.16 *American National Standard for Light-Emitting Diode Drivers—Methods of Measurement* enables a consistent characterization of LED driver performance.

This is a new standard. Suggestions for improvement on this standard will be welcome. They should be sent to the following address:

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This standard was developed and approved for submittal to ANSI by the C82 Committee. Approval of this standard is not meant to imply that all committee members voted to approve it.

NOTE: The user's attention is called to the possibility that compliance with this standard could require use of an invention covered by patent rights.

By publication of this standard, no position is taken with respect to the validity of any such claim(s) or of any patent rights in connection therewith. If a patent holder has filed a statement of willingness to grant a license under these rights on reasonable and non-discriminatory terms and conditions to applicants desiring to obtain such a license, then details may be obtained from the Secretary.

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1. General

1.1 Scope

This standard provides specifications for and operating characteristics of non-integral electronic drivers (power supplies) for LED devices, arrays, or systems intended for general lighting applications, including indoor and outdoor, as well as specific cases such as Power over the Ethernet (PoE), and Luminaires or Lighting systems assembled with two or more LED drivers, and in the future may include other devices such as Light Fidelity (LiFi) or Visual Light Communication (VLC). Electronic drivers are devices that use semiconductors to control and supply DC power for LED starting and operation. The drivers operate from supply sources up to 600 V AC or DC at a frequency up to 60 Hertz.

1.2 References

1.2.1 Normative References

The following standards contain provisions that, which through reference in this text, constitute provisions of this standard. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI C82.13	<i>American National Standard for Lamp Ballasts—Definitions—for Fluorescent Lamps and Ballasts</i>
ANSI C82.16	<i>American National Standard for Light-Emitting Diode Drivers—Methods of Measurement</i>
ANSI C82.77-5	<i>American National Standard for Lighting Equipment—Voltage Surge Requirements</i>
ANSI C82.77-10	<i>American National Standard for Lighting Equipment—Harmonic Emission Limits—Related Power Quality Requirements</i>
ANSI/IES LS-1	<i>Nomenclature and Definitions for Illuminating Engineering</i>
CFR Title 47 Part 15	<i>Radio Frequency Devices</i>
IEEE 100	<i>IEEE Standards Dictionary Online</i>
NEMA 77	<i>Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria</i>
NEMA 410	<i>Performance Testing for Lighting Controls and Switching Devices with Electronic Drivers and Discharge Ballasts</i>
UL 1012	<i>Power Units Other Than Class 2</i>
UL 1310	<i>Class 2 Power Units</i>
UL 8750	<i>Standard for Safety of Light Emitting Diode (LED) Equipment for Use in Lighting Products</i>