NEMA Standards Publication

ANSI C78.375A-2014 (R2020)

American National Standard for Electric Lamps — Fluorescent Lamps—Guide for Electrical Measures

National Electrical Manufacturers Association

National Electrical Manufacturers Association
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Secretariat:

National Electrical Manufacturers Association

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American National Standards Institute

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Foreword [This foreword is not part of American National Standard C78.375A-2014 (R2020).]

Suggestions for improvement of this Standard are welcome. They should be sent to the Secretary, ASC C78, National Electrical Manufacturers Association, 1300 North 17th Street, Suite 900, Rosslyn, Virginia 22209.

This Standard was processed and approved for submittal to ANSI by Accredited Standards Committee on Electric Lamps, C78. Approval of the Standard is not meant to imply that all Committee Members voted to approve it.

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1 Scope

This Standard describes the procedures to be followed and the precautions to be observed in obtaining uniform and reproducible measurements of the electrical characteristics of fluorescent lamps under Standard conditions when operated on alternating current (ac) circuits. These methods are applicable both to lamps having hot cathodes—switch-start (preheat-start), rapid-start (continuously heated cathodes), or instant-start— and to lamps of the cold-cathode variety.

The electrical characteristics usually measured are lamp current, lamp voltage, and lamp power. In the case of rapid-start lamps, the power measurements may include both the arc watts[1] and the cathode watts. Total lamp power is the sum of arc watts and cathode watts. The methods noted in this Standard apply to fluorescent lamps operated at common power-line frequencies (50 and 60 Hz) or high frequency.

1.1 Patent Disclaimer

At the time of publication, it is possible that some of the elements of this document may be the subject of patent rights. When this Standard was approved for publication, the Accredited Standards Committee C78 and the National Electrical Manufacturers Association (NEMA) did not know of any patent applications, patents pending, or existing patents. ASC C78 shall not be held responsible for identifying any or all such patent rights.

2 Normative References

The following publications contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All Standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the publications indicated below.

ANSI C78.81, *Double capped fluorescent lamps – Dimensional and electrical characteristics*

ANSI C78.901, *Single based fluorescent lamps – Dimensional and electrical characteristics*

ANSI C82.3, *Reference Ballasts for Fluorescent Lamps*

3 Supply Voltage Characteristics

The supply voltage shall be equal to the rated voltage of the reference ballast. During periods of stabilization, the supply shall be stable within ± 0.5%. This tolerance is reduced to ± 0.2% during measurement.

The wave shape of the supply voltage shall be a sine wave and shall have a wave shape such that the root-mean-square (rms) summation of the harmonic components shall not exceed 3% of the fundamental for all conditions that occur during the measurement.

Note—This implies that the source of the supply should have sufficient power, and that the supply circuit should have sufficiently low impedance, compared with the ballast impedance.

[1] Arc watts is the term used for the power consumed by the discharge only and does not refer to any power that may be supplied to the lamp cathodes from a separate voltage source.