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AMERICAN NATIONAL STANDARD

American National Standard

ANSI C78.1420-1997

AMERICAN NATIONAL STANDARD FOR ELECTRIC LAMPS— MICROFILM PROJECTION LAMPS— TWO-INCH (51MM), INTEGRAL REFLECTOR, RIM— REFERENCE TUNGSTEN-HALOGEN LAMPS WITH GX5.3 BASES

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ANSI C78.1420-1997

American National Standard

for electric lamps

Microfilm Projection Lamps—Two-inch (51mm), Integral Reflector, Rim—Reference Tungsten-Halogen Lamps with GX5.3 Bases

Secretariat
National Electrical Manufacturers Association

Approved July 22, 1997
American National Standards Institute

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Foreword (This Foreword is not part of ANSI C78.1420-1997.)

Suggestions for improvement of this standard should be submitted to the Secretariat C78, National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209.

This standard was processed and approved by Accredited Standards Committee on Electric Lamps, C78, and its Sub-Committee, C78-1. Committee approval of the standard does not necessarily imply that all committee members voted for that approval. At the time it approved this standard, the C78 Committee had the following members:

Al Rousseau, Chair, C-78
Randolph N. Roy, Secretariat

Organization Represented:	*Name of Representative:*
Advance Transformer Company	Norman Grimshaw
Duro-Test Corporation	Herbert Strauss
Edison Electric Institute	William Maguire (Delegate)
Electrical Testing Laboratories	Craig Davenport
General Electric	Cynthia Minshall
Illuminating Engineering Society	Rita M. Harrold
National Electrical Manufacturers Association	(vacant) (Delegate)
OSRAM SYLVANIA INC.	Peter Bleasby
Philips Lighting Company	Al Rousseau
Underwriters Laboratories, Inc.	David Belt

At the time it approved this standard, the C78-1 Sub-Committee had the following members:

Organization Represented:	*Name of Representative:*
Eastman Kodak Company	William Moore
GE Lighting	Bernard Rachel
	Cynthia Minshall
OSRAM SYLVANIA INC.	David Fox
	Jeffrey Buschmann (Alt.)
Philips Lighting Company	Al Rousseau
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Underwriters Laboratories, Inc.	David Belt

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for electric lamps

Microfilm Projection Lamps—Two-inch (51mm), Integral Reflector, Rim—Reference Tungsten—Halogen Lamps with GX5.3 Bases

1 Scope

This standard consolidates the lamps commonly used for microfilm projectors into a single standard. The lamps contained in this standard are not to be considered as interchangeable, although physically they will all fit the common GX5.3 sockets. The photometry of each lamp is dependent upon the system for which it was designed and on the system in which it is used. A sample system and representative photometric values are found in the Annex.

Two-inch (51mm), integral reflector, rim-reference tungsten halogen lamps with GX5.3 bases having the following ANSI lamp designations are covered: DDL, DDS, DJT, EPV, EPX, EPZ, EYG, FHX, FJX, FML.

2 Normative References

The following standards 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 standards indicated below.

ANSI C81.61-1990 (R1996), *Electrical Lamp Bases*

ANSI C78.1413-1982 (R1994), *Electric Lamps—Two-inch (51mm) Integral Reflector—Rim-Reference Projection Lamps—Dimensions of Centering Systems*

ANSI C78.1450-1983 (1994), *Electric Lamps—Incandescent Projection Lamps—Method for Life Testing*

ANSI IT7.201-1991, *Audio Visual Systems—Slide Projectors and Film Strip Projectors—Illumination Test*

IEC 682-1980, *Standard Method of Measuring the Pinch Temperature of Quartz Tungsten Halogen Lamps*

3 Ratings

Lamp ratings are given in Table 1.

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Table 1 – Lamp Ratings

ANSI Designation	Watts	Volts	Life (hrs)	Working Distance (mm)	Correlated Color Temperature (K)
DDL	150	20.0	500	197	3150
DDS	80	21.0	1000	165	3125
DJT	50	13.8	1000	152	3150
EPV	90	14.5	500	155	3150
EPX	90	14.5	500	165	3150
EPZ	50	13.8	1000	108	3050
EYG	25	13.8	500	108	3150
FHX	25	13.8	250	108	3200
FJX	30	13.8	500	108	3150
FML	50	13.8	1000	214	3125

4 Performance

Typical performance characteristics are given in Table 2.

Table 2 – Performance Characteristics

ANSI Designation	Nominal Center Footcandles	Nominal Corner/ Center Ratio %
DDL	70	80
DDS	60	70
DJT	50	70
EPV	125	55
EPX	50	60
EPZ	50	70
EYG	25	80
FHX	30	70
FJX	25	70
FML	130	50

Note: The representative values shown were obtained with a typical projection system as described in the Annex.

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5 Restrictions

Operating Position	Base down to horizontal plus 15°
Temperature Limits	350°C max. on seals
	250°C min. on bulb
Protective Shield	See Cautionary Notice

6 Cautionary Notice

To assure maximum safety during handling and use of the subject lamps, the following notices should be observed:

1. Tungsten-halogen lamps operate at high temperature and at internal gas pressures above atmospheric pressure. Consequently, a lamp could shatter. Certain lamps may also emit some amount of ultraviolet radiation. Therefore a suitable protective shield, screening technique, or both shall be used with the luminaire to protect people and surroundings from both hazards.

2. Always read and observe the information contained in the lamp manufacturer's caution notice.

7 Physical Characteristics

7.1 Base Specifications

GX5.3; see ANSI C81.61, Electrical Lamp Bases.

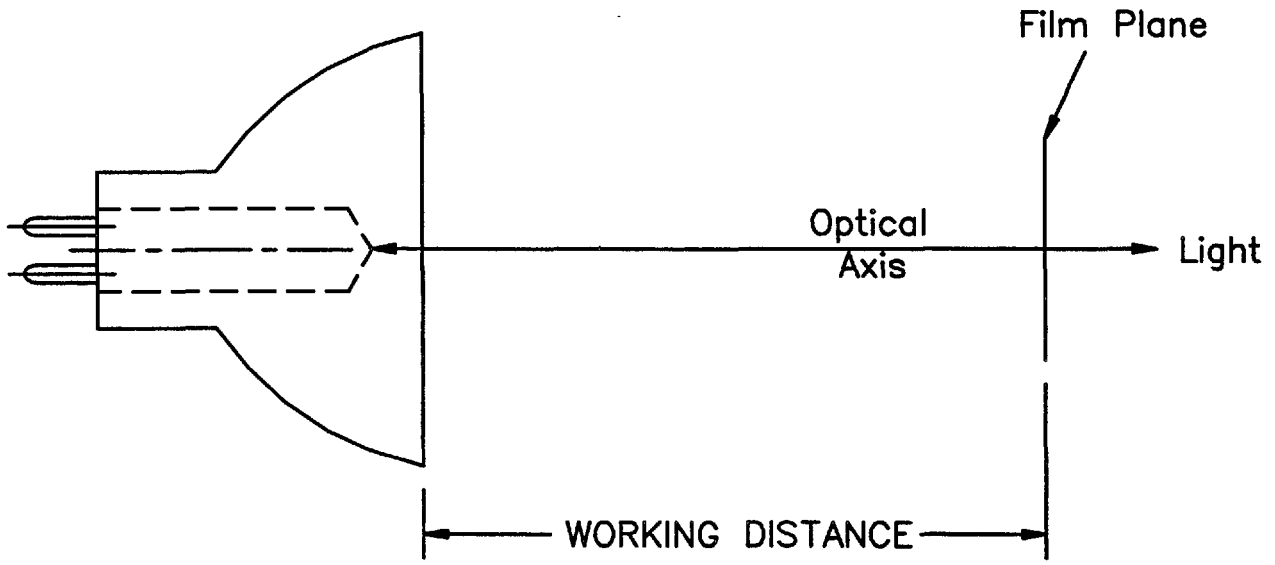

Figure 1 – Dimension (Working Distance) for Microfilm Projection Lamps

7.2 Dimensions

General dimensions for this type of lamp are covered in American National Standard, C78.1413.

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8 Test Procedures

8.1 Life

Open rack, horizontal burning position with cooling to maintain temperature limits in accordance with ANSI C78.1450.

8.2 Illumination

See ANSI IT7.201.

8.3 Seal Temperature

Measurement procedure is defined in IEC 682.

8.4 Operating Temperature

Standard method of measuring other lamp operating temperatures (bulb and base) are under consideration.

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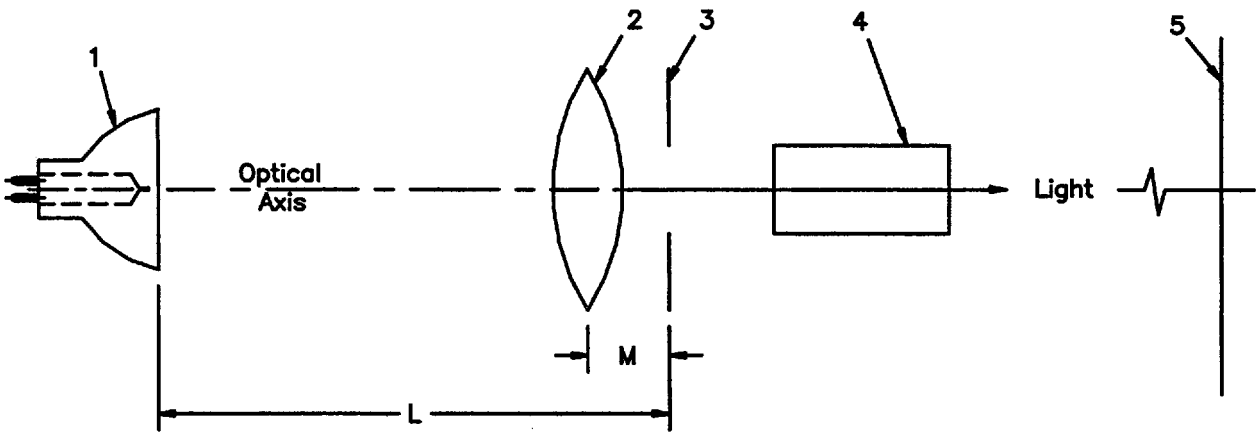
ANNEX A
(normative)



Component Description:

1-Lamp Designation	DDL	DDS,EPX	DJT	EPV	EPZ FHX,FJX	EYG	FML
2-Biconvex Condenser Lens Focal Length	50mm	50mm	50mm	50mm	50mm	50mm	50mm
3-Film Plane: Aperture Size	5.56mm square	5.82mm X 7.41mm	13.30mm X 16.93mm	11.11mm square	13.30mm X 16.93mm	5.82mm X 7.41mm	13mm X 16.59mm
4-Projection Lens Focal Length f/no.	22mm f/3.5	17mm f/2.8	38mm f/2.8	20mm f/3.5	38mm f/2.8	17mm f/2.8	32mm f/2.8
5-Projected Image Plane Image Size	266.7mm square	279.4mm X 355.6mm	279.4mm X 355.6mm	266.7mm square	279.4mm X 355.6mm	279.4mm X 355.6mm	279.4mm X 355.6mm

Reference:

L	197mm	165mm	152mm	155mm	108mm	108mm	214.3mm
M	15.88mm	15.88mm	15.88mm	15.88mm	15.88mm	15.88mm	23.80mm

Figure A.1 – Component Layout and Dimensions for Projection Lamp Systems

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