

1 Department of Public Service

2

3 Adopted Permanent Rules Relating to Fluorescent Lamp Ballasts

4

5 Rules as Adopted

6 7605.0100 AUTHORITY.

7 The commissioner is authorized by Minnesota Statutes,
8 section ~~165.19~~ 216C.19, subdivision 7 8, to establish minimum
9 energy efficiency standards for fluorescent lamp ballasts. No
10 person may sell, install, or place in inventory a fluorescent
11 lamp ballast in Minnesota that does not comply with parts
12 7605.0100 to 7605.0160 after their effective dates.

13 7605.0110 APPLICABILITY.

14 Subpart 1. **Applicability.** Parts 7605.0100 to 7605.0160
15 apply to fluorescent lamp ballasts distributed in commerce for
16 personal or commercial use or consumption that are:

17 A. manufactured on or after January 1, 1990; or

18 B. sold by the manufacturer on or after April 1,
19 1990; or

20 C. incorporated into a luminaire by a luminaire
21 manufacturer on or after April 1, 1991; and

22 D. designed to operate at nominal input voltages of
23 120 or 277 volts;

24 E. designed to operate with an input current
25 frequency of 60 Hertz; and

26 F. designed for use in connection with F40T12,
27 F96T12, or F96T12HO lamps.

28 Subp. 2. **Exclusion.** Fluorescent lamp ballasts excluded
29 from parts 7605.0100 to 7605.0160 are:

30 A. those designed for dimming or for use in ambient
31 temperatures of zero degrees Fahrenheit or less; and

32 B. those with a power factor of less than 0.90 and
33 sold for use in residential building applications.

34 7605.0120 DEFINITIONS.

1 Subpart 1. **Scope.** The definitions in this part apply to
2 parts 7605.0100 to 7605.0160.

3 Subp. 2. **ANSI standard.** "ANSI standard" means a standard
4 approved by a committee accredited by the American National
5 Standards Institute.

6 Subp. 3. **Ballast efficacy factor.** "Ballast efficacy
7 factor" means the relative light output divided by the power
8 input of a fluorescent lamp ballast, as measured under test
9 conditions specified in ANSI standard C82.2-1984.

10 Subp. 4. **Ballast input voltage.** "Ballast input voltage"
11 means the rated input voltage of a fluorescent lamp ballast.

12 Subp. 5. **Energy efficiency standard.** "Energy efficiency
13 standard" means a performance standard:

14 A. that prescribes a minimum level of energy
15 efficiency for a covered product, determined in accordance with
16 test procedures prescribed under United States Code, title 42,
17 section 6293; and

18 B. that includes any other requirement that the
19 department may prescribe.

20 Subp. 6. **Fluorescent lamp ballast.** "Fluorescent lamp
21 ballast" means a device used to start and operate fluorescent
22 lamps by providing a starting voltage and current and limiting
23 the current during normal operation.

24 Subp. 7. **F40T12.** "F40T12" means a nominal 40 watt tubular
25 fluorescent lamp that is 48 inches in length and 1.5 inches in
26 diameter and conforms to ANSI standard C78.1-1978 (R1984).

27 Subp. 8. **F96T12.** "F96T12" means a nominal 75 watt tubular
28 fluorescent lamp that is 96 inches in length and 1.5 inches in
29 diameter and conforms to ANSI standard C78.3-1978 (R1984).

30 Subp. 9. **F96T12H0.** "F96T12H0" means a nominal 110 watt
31 tubular fluorescent lamp that is 96 inches in length and 1.5
32 inches in diameter and conforms to ANSI standard C78.1-1978
33 (R1984).

34 Subp. 10. **Input current.** "Input current" means the
35 root-mean-square (RMS) current in amperes delivered to a
36 fluorescent lamp ballast.

1 Subp. 11. **Luminaire.** "Luminaire" means a complete
2 lighting unit consisting of a fluorescent lamp or lamps and
3 parts designed to distribute the light, to position and protect
4 the lamps, and to connect the lamps to the power supply through
5 the ballast.

6 Subp. 12. **Nominal lamp watts.** "Nominal lamp watts" means
7 the wattage at which a lamp is designed to operate.

8 Subp. 13. **Power factor.** "Power factor" means the power
9 input divided by the product of ballast input voltage and input
10 current of a fluorescent lamp ballast, as measured under test
11 conditions specified in ANSI standard C82.2-1984.

12 Subp. 14. **Power input.** "Power input" means the power
13 consumption in watts of a ballast and fluorescent lamp or lamps,
14 as determined in accordance with the test procedures specified
15 in ANSI standard C82.2-1984.

16 Subp. 15. **Relative light output.** "Relative light output"
17 means the light output delivered through the use of a ballast
18 divided by the light output delivered through the use of a
19 reference ballast, expressed as a percent, as determined in
20 accordance with the test procedures specified in ANSI standard
21 C82.2-1984.

22 Subp. 16. **Test procedures.** "Test procedures" means the
23 test procedures prescribed by the United States Department of
24 Energy under United States Code, title 42, section 6293.

25 7605.0130 FLUORESCENT LAMP BALLAST STANDARDS.

26 A fluorescent lamp ballast covered by parts 7605.0100 to
27 7605.0160 must have a power factor of 0.90 or greater and a
28 ballast efficacy factor not less than the following:

Application for	Ballast Input Voltage	Total Nominal Lamp Watts	Ballast Efficacy Factor
33 Operation of			
34 one F40T12 lamp.....	120	40	1.805
35	277	40	1.805

1	two F40T12 lamps.....	120	80	1.060
2		277	80	1.060
3				<u>1.050</u>
4	two F96T12 lamps.....	120	150	0.570
5		277	150	0.570
6	two F96T12H0 lamps.....	120	220	0.390
7		277	220	0.390

8 7605.0140 TESTING AND QUALITY ASSURANCE.

9 Subpart 1. Procedures. For fluorescent lamp ballasts
10 manufactured on or after January 1, 1990, a manufacturer shall
11 provide for the testing of each type of model of any covered
12 product which it manufactures, using test procedures applicable
13 to that model that comply with ANSI standard 82.2-1984.

14 Subp. 2. Samples. The manufacturer shall cause the
15 testing of samples of each model of fluorescent lamp ballast to
16 be sold or installed in Minnesota of the type described in part
17 7605.0110, subpart 1. A sample of sufficient size of each model
18 must be tested to ensure that the ballast efficacy factor is no
19 greater than the mean of the sample or the lower 97-1/2 percent
20 confidence limit of the true mean divided by 0.95. A minimum of
21 four ballasts of each model must be randomly selected and tested
22 at least once a year.

23 Subp. 3. Power input and relative light output. The power
24 input and relative light output must be determined in accordance
25 with the ANSI standard C82.2-1984.

26 7605.0150 LABELING.

27 The labeling of a fluorescent lamp ballast manufactured on
28 or after January 1, 1990, must indicate conspicuously, in
29 accordance with United States Code, title 42, section 6294, a
30 capital letter "E" printed within a circle on the ballast and on
31 the packaging of the ballast or of the luminaire into which the
32 ballast has been incorporated.

33 7605.0160 INCORPORATIONS BY REFERENCE.

34 Subpart 1. Generally. The portions of the standards

1 listed in subpart 2 that are specified in parts 7605.0100 to
2 7605.0160 are incorporated by reference. The material is
3 subject to frequent change, and all of the standards listed are
4 available to the public at the libraries listed in subpart 3.

5 Subp. 2. **Standards.** The following American National
6 Standards Institute standards are incorporated by reference:

7 A. ANSI Standard C78.1-1978 (R1984): Dimensional and
8 Electrical Characteristics of Fluorescent Lamps, Rapid Start
9 Types;

10 B. ANSI Standard C78.3-1978 (R1984): Dimensional and
11 Electrical Characteristics of Fluorescent Lamps, Instant Start
12 and Cold Cathode Types; and

13 C. ANSI Standard C82.2-1984: Methods of Measurement
14 of Fluorescent Lamp Ballasts.

15 Subp. 3. **Availability.** The standards incorporated by
16 reference are available to the public at the locations in items
17 A and B.

18 A. All documents incorporated by reference in this
19 chapter are available at the following locations in Saint Paul,
20 Minnesota:

21 (1) Minnesota State Law Library; and

22 (2) James J. Hill Reference Library.

23 B. All ANSI standards are also available at the
24 following locations:

25 (1) University of Minnesota Engineering Library;

26 and

27 (2) American National Standards Institute, 1430

28 Broadway, New York, New York 10018, telephone (212) 354-3300.