

APPENDIX W TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF MEDIUM BASE COMPACT FLUORESCENT LAMPS

1. *Scope*: This appendix covers the test requirements used to measure the initial efficacy, lumen maintenance at 1,000 hours, lumen maintenance at 40 percent of rated life, rapid cycle stress, and lamp life of medium base compact fluorescent lamps.

2. *Definitions*:

a. *Average rated life* means the length of time declared by the manufacturer at which 50 percent of any large number of units of a lamp reaches the end of their individual lives.

b. *Initial performance values* means the photometric and electrical characteristics of the lamp at the end of 100 hours of operation. Such values include the initial efficacy, the rated luminous flux and the rated lumen output.

c. *Lumen maintenance* means the luminous flux or lumen output at a given time in the life of the lamp and expressed as a percentage of the rated luminous flux or rated lumen output, respectively.

d. *Rated luminous flux or rated lumen output* means the initial lumen rating (100 hour) declared by the manufacturer, which consists of the lumen rating of a lamp at the end of 100 hours of operation.

e. *Rated supply frequency* means the frequency marked on the lamp.

f. *Rated voltage* means the voltage marked on the lamp.

g. *Rated wattage* means the wattage marked on the lamp.

h. *Self-ballasted compact fluorescent lamp* means a compact fluorescent lamp unit that incorporates, permanently enclosed, all elements that are necessary for the starting and stable operation of the lamp, and does not include any replaceable or interchangeable parts.

3. *Test Apparatus and General Instructions*: The test apparatus and instructions for testing medium base compact fluorescent lamps shall conform to the requirements specified in section 2, "Definitions," section 3, "Referenced Standards," and section 4, "CFL Requirements for Testing," of DOE's "ENERGY STAR Program Requirements for [Compact Fluorescent Lamps] CFLs," Version dated August 9, 2001, (commonly referred to as Version 2.0), (Incorporated by reference, see § 430.22). Record measurements at the resolution of the test instrumentation. Round off calculations to the same number of significant digits as the previous step. Round the final energy consumption value, as applicable, to the nearest decimal place or whole number as follows:

(i) A fractional number at or above the midpoint between two consecutive decimal places or whole numbers shall be rounded up to the higher of the two decimal places or whole numbers; or

(ii) A fractional number below the midpoint between two consecutive decimal places or whole numbers shall be rounded down to the lower of the two decimal places or whole numbers. Round the final initial efficacy to one decimal place. Round the final lumen maintenance at 1,000 hours to a whole number. Round the final lumen maintenance at 40 percent of rated life, the final rapid cycle stress, and the final lamp life for medium base compact fluorescent lamps to whole numbers.

4. *Test Measurement*: Measure the initial efficacy expressed in lumens per watt; lumen maintenance at 1,000 hours expressed in lumens; lumen maintenance at 40 percent of rated life expressed in lumens; rapid cycle stress expressed in the number of lamps that meet or exceed the minimum number of cycles; and lamp life expressed in hours in accordance with the test requirements specified in section 4, "CFL Requirements for Testing" of DOE's "ENERGY STAR Program Requirements for [Compact Fluorescent Lamps] CFLs," Version dated August 9, 2001 (Incorporated by reference, see § 430.22).

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APPENDIX X TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF DEHUMIDIFIERS

1. *Scope*: This appendix covers the test requirements used to measure the energy performance of dehumidifiers.

2. *Definitions*:

a. *Product capacity for dehumidifiers* means a measure of the ability of a dehumidifier to remove moisture from its surrounding atmosphere, measured in pints collected per 24 hours of continuous operation.

b. *Energy factor for dehumidifiers* means a measure of energy efficiency of a dehumidifier calculated by dividing the water removed from the air by the energy consumed, measured in liters per kilowatt hour (L/kWh).

3. *Test Apparatus and General Instructions*: The test apparatus and instructions for testing dehumidifiers shall conform to the requirements specified in section 1, "Definitions," section 2, "Qualifying Products," and section 4, "Test Criteria," of the EPA's "ENERGY STAR Program Requirements for Dehumidifiers," effective January 1, 2001 (Incorporated by reference, see § 430.22). Record measurements at the resolution of the test instrumentation. Round off calculations to the same number of significant digits as the

previous step. Round the final minimum energy factor value to two decimal places as follows:

(i) A fractional number at or above the midpoint between two consecutive decimal places shall be rounded up to the higher of the two decimal places; or

(ii) A fractional number below the midpoint between two consecutive decimal places shall be rounded down to the lower of the two decimal places.

4. *Test Measurement:* Measure the energy factor for dehumidifiers, expressed in liters per kilowatt hour (L/kWh) and product capacity in pints per day (pints/day), in accordance with the test requirements specified in section 4, “Test Criteria,” of EPA’s “ENERGY STAR Program Requirements for Dehumidifiers,” effective January 1, 2001 (Incorporated by reference, see § 430.22).

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APPENDIX Y TO SUBPART B OF PART 430—UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF BATTERY CHARGERS

1. *Scope:* This appendix covers the test requirements used to measure battery charger energy consumption.

2. *Definitions:* The following definitions are for the purposes of understanding terminology associated with the test method for measuring battery charger energy consumption.¹

a. *Accumulated nonactive energy* is the sum of the energy, in watt-hours, consumed by the battery charger in battery-maintenance mode and standby mode over time periods defined in the test procedure.

b. *Active mode* is the condition in which the battery is receiving the main charge, equalizing cells, and performing other one-time or limited-time functions necessary for bringing the battery to the fully charged state.

c. *Battery or battery pack* is an assembly of one or more rechargeable cells intended to provide electrical energy to a consumer product, and may be in one of the following forms: (a) detachable battery: a battery that is contained in a separate enclosure from the consumer product and is intended to be removed or disconnected from the consumer product for recharging; or (b) integral battery: a battery that is contained within the consumer product and is not removed from the consumer product for charging purposes.

d. *Battery energy* is the energy, in watt-hours, delivered by the battery under the specified discharge conditions in the test procedure.

¹For clarity on any other terminology used in the test method, please refer to IEEE Standard 1515–2000.

e. *Battery maintenance mode* or *maintenance mode* is the mode of operation when the battery charger is connected to the main electricity supply and the battery is fully charged, but is still connected to the charger.

f. *Cradle* is an electrical interface between an integral battery product and the rest of the battery charger designed to hold the product between uses.

g. *Energy ratio* or *nonactive energy ratio* means the ratio of the accumulated nonactive energy divided by the battery energy.

h. *Manual on-off switch* is a switch activated by the user to control power reaching the device. This term does not apply to any mechanical, optical, or electronic switches that automatically disconnect mains power from the device when a battery is removed from a cradle or charging base or, for products with non-detachable batteries, that control power to the product itself.

i. *Multi-port charger* means a battery charger that is capable of simultaneously charging two or more batteries. These chargers also may have multi-voltage capability, allowing two or more batteries of different voltages to charge simultaneously.

j. *Multi-voltage a la carte charger* means a separate battery charger that is individually packaged without batteries, and is able to charge a variety of batteries of different nominal voltages.

k. *Off mode* is the condition, applicable only to units with manual on-off switches, in which the battery charger is (1) connected to the main electricity supply; (2) is not connected to the battery; and (3) all manual on-off switches are turned off.

l. *Standby mode* (also *no-battery mode*) means the condition in which (1) the battery charger is connected to the main electricity supply; (2) the battery is not connected to the charger; and (3) for battery chargers with manual on-off switches, all such switches are turned on.

3. *Test Apparatus and General Instructions:* The test apparatus, standard testing conditions, and instructions for testing battery chargers shall conform to the requirements specified in section 4, “Standard Testing Conditions,” of the EPA’s “Test Methodology for Determining the Energy Performance of Battery Charging Systems,” December 2005 (Incorporated by reference, see § 430.22). The test voltage specified in section 4.1.1, “Voltage,” shall be 115 volts, 60 Hz. The battery charger should be tested using the full test methodology, which has a test duration of 48 hours. In section 4.3.1, “Precision Requirements,” append this sentence to the end: “The test equipment must be capable of accounting for crest factor and frequency spectrum in its measurement of the UUT input current.”

4. *Test Measurement:*