see § 431.15) pertain to ''NEMA T-frame dimensions;'' and

(iv) Section II, *Small (Fractional) and Medium (Integral) Machines*, Part 12, *Tests and Performance—AC and DC Motors*, paragraphs 12.35.1, 12.35.5, 12.38.1, 12.39.1, and 12.40.1, and Table 12–2, (Incorporated by reference, see § 431.15) pertain both to ''NEMA Design A'' and ''NEMA Design B.'')

(3) Terms in this definition followed by the parenthetical ''IEC'' must be construed with reference to provisions in IEC Standards as follows:

(i) IEC Standard 60034–1 (1996), *Rotating electrical machines*, Part 1: *Rating and performance*, with Amendment 1 (1997), Section 3: *Duty*, clause 3.2.1 and figure 1 (Incorporated by reference, see § 431.15) pertain to ''duty type S1'';

(ii) IEC Standard 60050–411 (1996), *International Electrotechnical Vocabulary Chapter 411: Rotating machines*, sections 411–33–07 and 411–37–26, (Incorporated by reference, see § 431.15) pertain to ''cage'';

(iii) IEC Standard 60072–1 (1991), *Dimensions and output series for rotating electrical machines—Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080*, clauses 2, 3, 4.1, 6.1, 7, and 10, and Tables 1, 2 and 4, (Incorporated by reference, see § 431.15) pertain to ''IEC metric equivalents'' to ''T-frame'' dimensions; and

(iv) IEC Standard 60034–12 (1980), *Rotating electrical machines, Part 12: Starting performance of single-speed three-phase cage induction motors for voltages up to and including 660 V*, with Amendment 1 (1992) and Amendment 2 (1995), clauses 1, 2, 3.1, 4, 5, and 6, and Tables I, II, and III, (Incorporated by reference, see § 431.15) pertain to ''IEC Design N.''

Enclosed motor means an electric motor so constructed as to prevent the free exchange of air between the inside and outside of the case but not sufficiently enclosed to be termed airtight.

General purpose motor means any motor which is designed in standard ratings with either:

(1) Standard operating characteristics and standard mechanical construction for use under usual service conditions, such as those specified NEMA Standards Publication MG1–1993, paragraph 14.02, ''Usual Service Conditions,'' (Incorporated by reference, see § 431.15) and without restriction to a particular application or type of application; or

(2) Standard operating characteristics or standard mechanical construction for use under unusual service conditions, such as those specified in NEMA Standards Publication MG1–1993, paragraph 14.03, ''Unusual Service Conditions,'' (Incorporated by reference, see § 431.15) or for a particular type of application, and which can be used in most general purpose applications.

IEC means the International Electrotechnical Commission.

IEEE means the Institute of Electrical and Electronics Engineers, Inc.

NEMA means the National Electrical Manufacturers Association.

Nominal full load efficiency means, with respect to an electric motor, a representative value of efficiency selected from Column A of Table 12–8, NEMA Standards Publication MG1–1993, (Incorporated by reference, see § 431.15), that is not greater than the average full load efficiency of a population of motors of the same design.

Open motor means an electric motor having ventilating openings which permit passage of external cooling air over and around the windings of the machine.

Special purpose motor means any motor, other than a general purpose motor or definite purpose motor, which has special operating characteristics or special mechanical construction, or both, designed for a particular application.

Total power loss means that portion of the energy used by an electric motor not converted to rotational mechanical power, expressed in percent.

TEST PROCEDURES, MATERIALS INCORPORATED AND METHODS OF DETERMINING EFFICIENCY

§ 431.15 Materials incorporated by reference.

(a) *General.* We incorporate by reference the following test procedures into Subpart B of Part 431. The material listed in paragraph (b) of this section has been approved for incorporation by reference by the Director of the

Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR 51. Any subsequent amendment to a standard by the standard-setting organization will not affect the DOE test procedures unless and until amended by DOE. Material is incorporated as it exists on the date of the approval and a notice of any change in the material will be published in the FEDERAL REGISTER.

(b) *List of standards incorporated by reference.* (1) The following provisions of National Electrical Manufacturers Association Standards Publication MG1–1993, *Motors and Generators*, with Revisions 1, 2, 3 and 4, IBR approved for §§ 431.12; 431.31 and appendix B to subpart B of Part 431:

(i) Section I, *General Standards Applying to All Machines*, Part 1, *Referenced Standards and Definitions*, paragraphs 1.16.1, 1.16.1.1, 1.17.1.1, 1.17.1.2, and 1.40.1, IBR approved for § 431.12;

(ii) Section I, *General Standards Applying to All Machines*, Part 4, *Dimensions, Tolerances, and Mounting*, paragraph 4.01 and Figures 4–1, 4–2, 4–3, and 4–4, IBR approved for § 431.12;

(iii) Section II, *Small (Fractional) and Medium (Integral) Machines*, Part 11, *Dimensions—AC and DC Small and Medium Machines*, paragraphs 11.01.2, 11.31 (except the lines for frames 447T, 447TS, 449T and 449TS), 11.32, 11.34 (except the line for frames 447TC and 449TC, and the line for frames 447TSC and 449TSC), 11.35, and 11.36 (except the line for frames 447TD and 449TD, and the line for frames 447TSD and 449TSD), and Table 11–1, IBR approved for § 431.12;

(iv) Section II, *Small (Fractional) and Medium (Integral) Machines*, Part 12, *Tests and Performance—AC and DC Motors*, paragraphs 12.35.1, 12.35.5, 12.38.1, 12.39.1, and 12.40.1, 12.58.1, and Tables 12–2 and 12–8, IBR approved for § 431.12; and

(v) Section II, *Small (Fractional) and Medium (Integral) Machines*, Part 14, *Application Data—AC and DC Small and Medium Machines*, paragraphs 14.02 and 14.03, IBR approved for § 431.12.

(2) Institute of Electrical and Electronics Engineers, Inc., Standard 112–1996, *Test Procedure for Polyphase Induction Motors and Generators*, Test Method B, *Input-Output with Loss Segregation*, and the correction to the calculation at item (28) in Section 10.2 Form B-Test Method B issued by IEEE on January 20, 1998. (Note: Paragraph 2 of appendix A to subpart B of Part 431 sets forth modifications to this Standard when it is used for purposes of Part 431 and EPCA, IBR approved for §§ 431.12; 431.19; 431.20; appendix B to subpart B of Part 431.

(3) CSA International Standard C390–93, *Energy Efficiency Test Methods for Three-Phase Induction Motors*, Test Method (1), *Input-Output Method With Indirect Measurement of the Stray-Load Loss and Direct Measurement of the Stator Winding (I2R), Rotor Winding* (I^2R), *Core and Windage-Friction Losses*, IBR approved for §§ 431.12; 431.19; 431.20; appendix B to subpart B of Part 431.

(4) International Electrotechnical Commission Standard 60034–1 (1996), *Rotating electrical machines, Part 1: Rating and performance*, with Amendment 1 (1997), Section 3: *Duty*, clause 3.2.1 and figure 1, IBR approved for § 431.12.

(5) International Electrotechnical Commission Standard 60050–411 (1996), *International Electrotechnical Vocabulary Chapter 411: Rotating machines*, sections 411–33–07 and 411–37–26, IBR approved for § 431.12.

(6) International Electrotechnical Commission Standard 60072–1 (1991), *Dimensions and Output Series for Rotating Electrical Machines—Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080*, clauses 2, 3, 4.1, 6.1, 7, and 10, and Tables 1, 2 and 4, IBR approved for § 431.12.

(7) International Electrotechnical Commission Standard 60034–12 (1980), *Rotating Electrical Machines, Part 12: Starting performance of single-speed three-phase cage induction motors for voltages up to and including 660 V*, with Amendment 1 (1992) and Amendment 2 (1995), clauses 1, 2, 3.1, 4, 5, and 6, and Tables I, II, and III, IBR approved for § 431.12.

(c) *Inspection of standards.* The standards incorporated by reference are available for inspection at:

(1) National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html;*

(2) U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Hearings and Dockets, ''Test Procedures, Labeling, and Certification Requirements for Electric Motors,'' Docket No. EE–RM–96–400, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC.

(d) *Availability of standards.* Standards incorporated by reference may be obtained from the following sources:

(1) Copies of IEEE Standard 112–1996 can be obtained from the Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855–1331, 1–800–678-IEEE (4333);

(2) Copies of NEMA Standards Publication MG1–1993 with Revisions 1, 2, 3, and 4, and copies of International Electrotechnical Commission standards can be obtained from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112–5776, 1–800–854–7179 (within the U.S.) or (303) 397–7956 (international).

(3) Copies of CSA International Standard C390–93 can be obtained from CSA International, 5060 Spectrum Way, Mississauga, Ontario, Canada L4W5N6, (416) 747–4044;

(e) *Reference standards*—(1) *General.* The standards listed in this paragraph are referred to in the DOE procedures for testing laboratories, and recognition of accreditation bodies and certification programs but are not incorporated by reference. These sources are given here for information and guidance.

(2) *List of references.* (i) National Voluntary Laboratory Accreditation Program Handbooks 150, ''Procedures and General Requirements,'' March 1994, and 150–10, ''Efficiency of Electric Motors,'' August 1995. National Voluntary Laboratory Accreditation Program, National Institute of Standards and Technology, Gaithersburg, MD 20899.

(ii) ISO/IEC Guide 25, ''General requirements for the competence of calibration and testing laboratories.''

(iii) ISO Guide 27, ''Guidelines for corrective action to be taken by a certification body in the event of either misapplication of its mark of conformity to a product, or products which bear the mark of the certification body being found to subject persons or property to risk.''

(iv) ISO/IEC Guide 28, ''General rules for a model third-party certification system for products.''

(v) ISO/IEC Guide 58, ''Calibration and testing laboratory accreditation systems—General requirements for operation and recognition.''

(vi) ISO/IEC Guide 65, ''General requirements for bodies operating product certification systems.''

§ 431.16 Test procedures for the measurement of energy efficiency.

For purposes of 10 CFR Part 431 and EPCA, the test procedures for measuring the energy efficiency of an electric motor shall be the test procedures specified in appendix B to this subpart B.

§ 431.17 Determination of efficiency.

When a party determines the energy efficiency of an electric motor in order to comply with an obligation imposed on it by or pursuant to Part C of Title III of EPCA, 42 U.S.C. 6311–6316, this Section applies. This section does not apply to enforcement testing conducted pursuant to § 431.192.

(a) *Provisions applicable to all electric motors*—(1) *General requirements.* The average full load efficiency of each basic model of electric motor must be determined either by testing in accordance with § 431.16 of this subpart, or by application of an alternative efficiency determination method (AEDM) that meets the requirements of paragraphs (a)(2) and (3) of this section, provided, however, that an AEDM may be used to determine the average full load efficiency of one or more of a manufacturer's basic models only if the average full load efficiency of at least five of its other basic models is determined through testing.

(2) *Alternative efficiency determination method.* An AEDM applied to a basic model must be:

(i) Derived from a mathematical model that represents the mechanical and electrical characteristics of that basic model, and

(ii) Based on engineering or statistical analysis, computer simulation or modeling, or other analytic evaluation of performance data.