



EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY

Directorate C - New and renewable sources of energy, Energy efficiency & Innovation
C.3 - Energy efficiency of products & Intelligent Energy – Europe

Brussels, 23rd June 2010
M/470 EN

Mandate to CEN, CENELEC and ETSI for Standardisation in the field of electric motors

1. BACKGROUND

1.1 Legal Basis of the mandate

This mandate relates to Directive 2005/32/EC of the European Parliament and of the Council and to measures implementing this Directive for which Harmonised Standards should be developed to cover ecodesign requirements.

1.2 The aim of the Mandate

The Regulatory Committee established by Directive 2005/32/EC has voted favourably in March 2009 a Draft Commission Regulation implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for electric motors. The draft Directive requires that the measurement procedure for establishing the energy consumption and other parameters of motors shall be reliable, accurate and reproducible, which take into account the generally recognised state of the art, in order to ensure comparable measurements and fair competition, and to facilitate market surveillance activities.

The aim of this mandate is to create (a) harmonised standard(s) which cover(s) this requirement.

2. DESCRIPTION OF THE MANDATED WORK

The Commission requests CEN, CENELEC and ETSI to elaborate reliable, accurate and reproducible measurement methods, which take into account the generally recognised state of the art, and/or adopt or adapt existing European and International standards for motors. The standard(s) produced shall lay down procedures and methods of measuring the energy efficiency and associated characteristics such as mechanical output power and the electrical input power of electric motors, ensuring cooperation between IEC TC22X and IEC TC2, for:

- Motors, including variable speed drives;
- AC induction motors, as specified in relevant standards, such as in EN 60034-30:2009-03 and in EN 60034-2-1:2007-11;

- All other types of motors, such as single phase induction motors and permanent magnet synchronous and reluctance motors, as e.g. in draft EN TS 60034-31;
- Any other electric single speed, three-phase 50 Hz or 50/60 Hz, squirrel cage induction motor, as defined in the draft Commission Regulation, such as motors design for converter operation;
- Other electric motors which operate in the same fields of application as AC induction motors.

The standard(s) has also to include the necessary definitions of the appliance and the parameters to be measured, taking in particular into account the work of IEC TC 2 and TC 22.

The standardisation tasks covered by this mandate are as follows:

Procedures and methods for measuring the energy efficiency, for the power range 0.75 kW-500 kW, or higher, efficiency classes and associated characteristics of low voltage electric mains operated (AC) induction motors as specified in prEN 60034-30:2008, including motors with inbuilt variable speed drives and motors designed for converter operation:

- to ensure that the prospective harmonised standard(s) provides, where appropriate, revised and/or new definitions for at least the motor types and main characteristics, and the parameters to be included in the ‘Draft Commission Regulation implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for electric motors’;
- to ensure that the prospective harmonised standard(s) provide(s) procedures and methods to measure at least the energy efficiency, establish energy efficiency classes for AC induction motors, as specified in prEN 60034-30:2008, including motors design for converter operation;
- to ensure that the prospective harmonised standard(s) provide(s) procedures and methods to measure the motors starting from between 200 to 500W, as appropriate, up to 500kW, at minimum, in the light of the foreseen implementing measures on other possible related products, such as compressors, fans and pumps, including motors driving these products;
- to ensure that the prospective harmonised standard(s) includes a procedure that avoids an appliance being programmed to recognize the test conditions, and reacting specifically to them;
- to ensure that the prospective harmonised standard(s) take(s) into account up-to-date test conditions, test equipment and new appliance types to better reflect the user behaviour and the state of the art at European and international level. In particular the following points should be included:
 - for the possible usage of appliances in part load 50% and 75% load efficiencies should appear in the catalogues;
 - the definition and measurement of mechanical output power and electrical input power to calculate the energy efficiency;

- the definition of parallel energy efficiency classes for any new technologies, for example permanent magnet motors;
- the definition of efficiency levels, taking particular account of the IE4 classe in EN 60034-30:2009-03, and a future class IE5 attainable only for non-induction motors;
- the definition of test measurement methods and efficiency levels for motors designed for converter operation, taking into account their electromagnetic compatibility;
- the redefinition and reduction of test tolerances;
- the definition of parameters for resource efficiency, re-use and recycling, as appropriate;
- the standards take account of other (developing) international standards with which they may overlap;
- to ensure that, for the purpose of the ‘Draft Commission Regulation implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for electric motors and their drives’, they can be equipped for operation on low voltage different power supplies, general purpose induction motors, as specified in fprEN 60034-30:2008, use three phase low voltage (below 1000 V AC);
- to ensure that in the prospective harmonised standard(s) take(s) into due account the definitions and parameters needed to fulfil the scope of the foreseen Draft Commission Regulation implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for electric motors and the needs of the revision of that Regulation, as far as the extension of the scope of the standard is described above.

Verification procedure for market surveillance purposes:

- to ensure that the prospective harmonised standard(s) identifies and controls the sources of variability to be considered for market surveillance purposes;
- to provide values for measurement uncertainties for the purposes of the verification procedure for the measured parameters taking into account the different sources of variability to be considered when a specific product is taken from the market and measured for market surveillance purposes;
- to verify if, in order to reduce the impact of variability to the system, the standard(s) should include specific criteria to be met by laboratories involved in the verification of the declared data (e.g. quality management system, qualification system, personnel training...).

Template for test report:

- to define a template for a test report indicating the information to be declared by the manufacturers to fulfil at least the ecodesign requirements set out by Draft

Commission Regulation implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for electric motors.

3. EXECUTION OF THE MANDATE

CEN, CENELEC and ETSI are requested to communicate to the Commission, within 2 month of the acceptance of this mandate, a work plan for the execution of the above mentioned standardisation tasks, indicating the standard(s) requiring revision or amendment, and the new standard(s) that would need to be developed, if any.

CEN, CENELEC and ETSI are requested to communicate to the Commission after 7 months from the acceptance of this mandate an interim report on the progress of the tasks set out in this mandate for the stage 1 requirements of the Regulation on motors and after 12 months for the second and third stage requirements of the Regulation, indicating any eventual difficulties encountered and communicating details of any Standard(s) that has been taken into consideration and modified to answer to the needs of the Mandate.

CEN, CENELEC and ETSI are requested to provide, in the three working languages of the ESOs, a copy of the standard(s) developed under this mandate for the stage 1 requirements of the Regulation within 12 months, and for the second and third stage requirements of the Regulation within 48 months of the acceptance of the mandate.

CEN, CENELEC and ETSI are requested to forward the titles of the standard(s) developed or adapted under this mandate in all the official languages of the European Union.

CEN, CENELEC and ETSI are requested to draw up the work plan and execute the above mentioned tasks in close cooperation in order to ensure consistency and avoid overlapping standards.

Wherever possible the tasks should be executed within the framework of the Vienna and Dresden Agreements with a view to duly take into consideration the activities already done or in process at international level.

CEN, CENELEC and ETSI are requested to indicate in the standards produced under this mandate the relationship between the clauses of the standard and the essential requirements covered.

Acceptance by CEN, CENELEC and ETSI, as applicable, of this mandate starts the standstill period referred to in Article 7 of the Directive 98/34/EC of 22 June 1998 (Of N° L 204/37 of 21 July 1998).

4. BODIES TO BE ASSOCIATED

As appropriate, CEN, CENELEC and ETSI will invite the representative organisations of consumers' interests (ANEC), environmental protection (ECOS), workers (ETUI-REHS)

and small and medium-size enterprises (NORMAPME) to take part in the standardisation work.

As appropriate, CEN, CENELEC and ETSI will consult organisations of other global standardisation and policy initiatives such as the IEA Electric Motor System 4E annex.