



**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, 30<sup>th</sup> November 2010

**M/476 EN**

## **Mandate to CEN, CENELEC and ETSI for Standardisation in the field of variable speed drives and/or Power Drive System products**

### **1. BACKGROUND**

#### **1.1 Legal Basis of the mandate**

This mandate relates to Directive 2009/125/EC of the European Parliament and of the Council and to measures implementing these Directives for which a Harmonised Standard should be developed to cover ecodesign requirements.

#### **1.2 The aim of the Mandate**

The Regulatory Committee established by Directive 2009/125/EC is expected to be endorsing in the future a Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for variable speed drives and/or power drive system products, including voltage regulators and other relevant technologies. The draft Directive requires that the measurement procedure for establishing the energy consumption, energy efficiency and other parameters of variable speed drives and/or power drive system products 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 covers this requirement.

### **2. DESCRIPTION OF THE MANDATED WORK**

The Commission requests CEN, CENELEC and ETSI to elaborate European standard(s) containing 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 variable/adjustable speed drives and/or Power Drive Systems and products. The standard(s) produced shall lay down procedures and methods of measuring the energy consumption, energy efficiency and associated characteristics of either variable speed drives and/or of Power Drive Systems (PDS) equipped with variable speed drives, as appropriate, in ensuring that the chosen strategy does not pre-empt the choice of a control strategy to the detriment of other system parameters. 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 IECSC22G and CLC/TC 22X (in particular as to work on M/470 on electric motors).

The standardisation tasks covered by this mandate are as follows:

Procedures and methods for measuring the energy efficiency, efficiency classes, load and speed profiles and associated characteristics of variable speed drives and/or of Power Drive Systems (PDS) equipped with variable speed drives, as appropriate:

- to ensure that the prospective harmonised standard(s) provide(s), where appropriate, revised and/or new definitions for at least the drive an/or Power Drive System types and main characteristics, and the parameters to be included in a possible 'Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for variable speed drives' and to be taken into account, or to be included, as appropriate, in the forthcoming Commission Regulations implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for any energy-using products subject to be equipped with variable speed drives, when relevant;
- to ensure that the prospective harmonised standard(s) provide(s) procedures and methods to measure at least the energy efficiency in an appropriate combination of load (such as pumps, fans, compressors, squared and constant torque) and speed patterns and establish, if relevant, energy efficiency classes for variable speed drives and/or Power Drive Systems;
- 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 about the following points should be included:
- the definition of efficiency measurement methods and levels, taking into account the needs of the Commission implementing Regulation on electric motors, on a possible implementing Regulation on VSDs and/or on Power Drive System products or on other energy-using products, including the coordination between the relevant IEC Working Groups, especially CLC/TC 2 and CLC/TC 22, and the relevant IEA working groups;
- harmonisation and definition of wording such as 'variable speed drive', adjustable speed drive, variable frequency drive, taken into account existing standards, such as EN/IEC 61800 on adjustable speed electrical power drive systems and any relevant standards on Power Drive System (PDS), including the work done in IEC-SC22G and Cenelec CLC/TC22X;
- the definition of energy efficiency classes for drives by voltage and current source, including for direct converters, and/or of Power Drive System products, including when used with either induction motors or any other technology, such as permanent magnet synchronous motors, double fed induction motors, (brushless) DC motors and switched reluctance motors;

- the definition of test measurement methods and efficiency levels for variable speed drives, taking into account measurement uncertainty;
- to take into account the related requirements in other Community legislation, such as in EMC Directive 2004/108/EC;
- to ensure that in the prospective harmonised standard(s) take(s) into due account the definitions and parameters developed under the Mandate on motors fulfilling the scope of the foreseen Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for motors;
- 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 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for variable speed drives.

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 standard 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 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for variable/adjustable speed drives.

#### **4. EXECUTION OF THE MANDATE**

CEN, CENELEC and ETSI are requested to communicate to the Commission, within 9 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 15 months from the acceptance of this mandate an interim report on the progress of the tasks set out in

this mandate, 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 within 36 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).

## **5. 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 4E annex.