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**ELECTRICALLY PROPELLED ROAD
VEHICLES - MEASUREMENT OF EMISSIONS
OF HYBRID VEHICLES - PART 1: THERMAL
ELECTRIC HYBRID VEHICLES**

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**Electrically propelled road vehicles - Measurement of emissions
of hybrid vehicles - Part 1: Thermal electric hybrid vehicles**

Véhicules routiers à propulsion électrique - Mesurage des
émissions des véhicules hybrides - Partie 1: Véhicules
hybrides électriques thermiques

Elektrisch angetriebene Straßenfahrzeuge - Messung der
Emissionen von Hybridfahrzeugen - Teil 1: Thermische
Hybrid-Elektrofahrzeuge

This European Standard was approved by CEN on 8 March 2001.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 301 "Electrically propelled road vehicles", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2001, and conflicting national standards shall be withdrawn at the latest by October 2001.

CEN TC 301 is dealing with "Electrically propelled road vehicles". This title includes, in fact a wide range of electric road vehicles (see the definitions in EN 13447:2001) which can be divided as follows:

- Pure electric vehicle : this is an electrically propelled and infrastructure independent exclusively electrically supplied road vehicle.
- Road vehicle fitted with an electric transmission : this vehicle remains in the scope of CEN/TC 301 but is considered as a conventional (e.g. an internal combustion engine vehicle) vehicle with a specific transmission (no standards to be developed).
- Thermal electric hybrid vehicles where the thermal engine has such a low level of power ¹⁾ compared to that of the power train power may be treated as a pure electric vehicle from the measuring point of view.
- Other infrastructure independent electric vehicles which are today called electric hybrid vehicles. These electric hybrid vehicles can run with a zero level pollutant emission.
- Infrastructure dependent electrically propelled road vehicles are excluded from application of this standard.

A large amount of work has been undertaken on electric hybrid vehicles, and there is still a lot to discover on these vehicles which can for instance incorporate several driving modes (more than two).

To remain today within what is most common, the term thermal electric hybrid vehicle will be understood as an electric road vehicle fitted with a thermal machine (which is fed with fuel).

This European Standard EN 13444 consists of the following parts, under the general title "Electrically propelled road vehicles - Measurement of emissions of hybrid vehicles":

- Part 1: Thermal electric hybrid vehicles ;
- Part 2: Other hybrid vehicles than those fitted with a thermal machine.

Annex A forms an integral part of EN 13444-1.

Annex B to Annex D are for information only.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

¹⁾ In order to be able to use existing measuring facilities.

1 Scope

This standard aims at defining the emission measurements for a thermal electric hybrid road vehicle from M₁, N₁, or M₂²⁾ category, and for tricycles and quadricycles from the motorcycle types³⁾.

This standard applies to the above mentioned vehicles whose emission can be tested following the provisions already laid down for conventional vehicles (i.e. Internal Combustion engine vehicle) from the equivalent categories.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 13447:2001,	Electrically propelled road vehicles - Terminology
EN 1986-2:2001,	Electrically propelled road vehicles - Measurement of the energy performances - Part 2 : Thermal electric hybrid vehicles
EN ISO 3675,	Crude petroleum and liquid petroleum products – Laboratory determination of density - Hydrometer method (ISO 3675:1998)

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply (see also EN 13447:2001).

3.1

electrically propelled road vehicle

road vehicle in which electric energy is transformed by electrical machine(s) into mechanical energy for traction purpose.

NOTE Traction is the term used with the same meaning as propulsion, but for historical reasons, this is the most widely used term.

3.2

electric hybrid (road) vehicle

hybrid (road) vehicle in which one of the reversible energy source produces electric energy.

3.3

thermal electric hybrid vehicle

electric hybrid vehicle in which the traction system contains a thermal machine.

NOTE Vehicle integrating electric machine(s) for functional assistance to the engine such as load levelling devices, starter, electrically driven auxiliary units, etc. should not be considered as electric hybrid vehicles, in so far they do not participate to the traction.

3.4

pure electric mode

driving mode when only the secondary on board electric energy source delivers energy for traction purpose. The pure electric mode can be either selected by the driver or automatically selected by the system.

For definitions of primary or secondary on board electric energy source, refer to EN 13447:2001 (Terminology).

²⁾ Categories of vehicle M₁, N₁, and M₂ are defined in Directive 92/53/EEC.

³⁾ Motor tricycles and quadricycles are defined in Directive 92/61/EEC. In practice, tricycles and quadricycles with a maximum speed over 45 km/h fall within the scope of this standard.

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