Põllumajandus- ja metsatöömasinad. Elektromagnetiline ühilduvus. Katsetusmeetodid ja vastavuskriteeriumid

Agricultural and forestry machines - Electromagnetic compatibility - Test methods and acceptance criteria

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 14982:2009 sisaldab Euroopa standardi EN ISO 14982:2009 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 14982:2009 consists of the English text of the European standard EN ISO 14982:2009.
Standard on kinnitatud Eesti Standardikeskuse 31.07.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.07.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 25.02.2009.	Date of Availability of the European standard text 25.02.2009.
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ICS 33.100.01, 65.060.01

Võtmesõnad: elektriline testimine, elektromagnetiline ühilduvus, elektromagnetilised häired, elektroonilised seadmed, metsavarumisseadmed, määramine, põllumajandusmasinad, testimised, vastavus tehnilistele tingimustele

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Agricultural and forestry machinery - Electromagnetic compatibility - Test methods and acceptance criteria (ISO 14982:1998)

Machines agricoles et forestières - Compatibilité électromagnétique - Méthodes d'essai et critères d'acceptation (ISO 14982:1998)

This European Standard was approved by CEN on 26 January 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

The text of ISO 14982:1998 has been prepared by Technical Committee ISO/TC 23 “Tractors and machinery for agriculture and forestry” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 14982:2009 by Technical Committee CEN/TC 144 “Tractors and machinery for agriculture and forestry” 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 August 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 14982:1998.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directives.

For relationship with EC Directives, see informative Annex ZA, ZB and ZC, which are integral part of this document.

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

Endorsement notice

The text of ISO 14982:1998 has been approved by CEN as a EN ISO 14982:2009 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC

This International Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 98/37/EC on machinery, amended by the New Approach Directive 98/79/EC.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses 1, 2, 3, 4, 5.1, 5.2, 6.3, 6.6, 6.8 and 7 of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the relevant *Essential Requirement 1.5.11 limited to EMC immunity* of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard."

Annex ZB
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC on machinery

This International Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses 1, 2, 3, 4, 5.1, 5.2, 6.3, 6.6, 6.8 and 7 of this standard, confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirement *1.5.11 limited to EMC immunity* of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

Annex ZC
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2004/108/EC on electromagnetic compatibility

This International Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2004/108/EC on electromagnetic compatibility.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard, confers, within the limits of the scope of this standard, a presumption of conformity with the relevant protection requirements of Annex I (1) of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

Contents

Page

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Introduction

In the past years more and more electronic devices designed to control, supervise and indicate multiple functions have been used in agricultural machines and tractors. The electrical and electromagnetic environment in which these devices work needs to be taken into consideration.

Electrical and high frequency disturbances emerge during the normal operation of many parts of the machine devices. They are generated within a large frequency range with different electrical characteristics and, by conduction and/or radiation, can be imparted to other electronic devices and systems of the machine.

Narrowband signals generated by sources of interference inside or outside the agricultural machines and tractors can also be coupled in electrical and electronic systems where they can influence the normal function of electrical devices. Sources of narrowband electromagnetic disturbances are, for example, machines with integrated micro-processors.

The elaboration of this International Standard is based upon the Commission Directive 95/54/EC (31 October 1995) "Commission Directive 95/54/EC of 31 October 1995 adapting to technical progress Council Directive 72/245/EEC on the approximation of the laws of the Member States, relating to the suppression of radio interference produced by spark-ignition engines fitted to motor vehicles and amending Directive 70/156/EEC on the approximation of the laws of the Member States relating to the type approval of motor vehicles and their trailers". This procedure was chosen due to the large conformity of the disturbance phenomena in many domains (motor vehicles, tractors, self-propelled machinery), similar operation and ambient conditions and the possibility of using the same measuring rig and measuring apparatus. As far as possible, the measuring procedures described in Directive 95/54/EC have been replaced by equivalent internationally standardized measuring procedures. However, it was not possible to refer to International Standards for radiated broadband and narrowband electromagnetic disturbances from machines and for radiated broadband and narrowband electromagnetic disturbances of electrical/electronic sub-assemblies (ESA). Therefore the necessary procedures are described in detail in annexes B, C, D and E. International standardization of the measuring procedures for all types of machines would be desirable for the future.

The electrostatic discharge and the conducted transients are considered to be relevant for agricultural machines and tractors and therefore (in contrast with the Directive 95/54/EC) are included in this International Standard.

Electrostatic discharges are relevant because also control elements can be positioned outside the cabin and potential differences can emerge at contact. Conducted transients have to be taken into account because agricultural machines often represent open systems and several machines are combined with one another. Up to now, however, only conducted transients along supply lines in 12 V- and 24 V-onboard systems have been dealt with. The manufacturer is therefore responsible for ensuring that the equipment may withstand conducted transients which may occur at the switching under load and interactions between systems. Internal cabling and networks should comply with the state of the art. Conducted transients at signal lines have not yet been treated.

This International Standard has been established as a means of achieving conformity with the requirements of the EMC Directive (89/336/EEC) and the EMC requirements of the Machine Directive (89/392/EEC).

Agricultural and forestry machinery — Electromagnetic compatibility — Test methods and acceptance criteria

1 Scope

This International Standard specifies test methods and acceptance criteria for evaluating the electromagnetic compatibility of tractors and all kinds of mobile (including hand-held) agricultural machinery, forestry machinery, landscaping and gardening machinery [referred to hereafter as machine(s)] as supplied by the machine manufacturer. It is applicable to machines and electrical/electronic sub-assemblies (ESA's) which are manufactured after the date of publication of this International Standard.

Electrical/electronic components or sub-assemblies intended for fitting in machines are also within the scope of this standard, except regarding immunity for those parts whose functions are not involved in the direct control and modification of the state of the functions of the machine.

This International Standard is not applicable to machines directly supplied with low voltage current from public electrical mains. Exceptions to machines or electrical/electronic systems or ESA's that may not require testing in accordance with this International Standard are given in clause 7.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7637-0:1990, *Road vehicles — Electrical disturbance by conduction and coupling — Part 0: Definitions and general.*

ISO 7637-1:1990, *Road vehicles — Electrical disturbance by conduction and coupling — Part 1: Passenger cars and light commercial vehicles with nominal 12 V supply voltage — Electrical transient conduction along supply lines only.*

ISO 7637-2:1990, *Road vehicles — Electrical disturbance by conduction and coupling — Part 2: Commercial vehicles with nominal 24 V supply voltage — Electrical transient conduction along supply lines only.*

ISO/TR 10605:1994, *Road vehicles — Electrical disturbance from electrostatic discharge.*

ISO 11451-1:1995, *Road vehicles — Electrical disturbances by narrowband radiated electromagnetic energy — Vehicle test methods — Part 1: General and definitions.*

ISO 11451-2:1995, *Road vehicles — Electrical disturbances by narrowband radiated electromagnetic energy — Vehicle test methods — Part 2: Off-vehicle radiation source.*

ISO 11452-1:1995, *Road vehicles — Electrical disturbances by narrowband radiated electromagnetic energy — Component test methods — Part 1: General and definitions.*

ISO 11452-2:1995, *Road vehicles — Electrical disturbances by narrowband radiated electromagnetic energy — Component test methods — Part 2: Absorber-lined chamber.*

ISO 11452-3:1995, *Road vehicles — Electrical disturbances by narrowband radiated electromagnetic energy — Component test methods — Part 3: Transverse electromagnetic mode (TEM) cell.*

ISO 11452-4:1995, *Road vehicles — Electrical disturbances by narrowband radiated electromagnetic energy — Component test methods — Part 4: Bulk current injection (BCI).*

ISO 11452-5:1995, *Road vehicles — Electrical disturbances by narrowband radiated electromagnetic energy — Component test methods — Part 5: Stripline.*

IEC 50-161:1990, *International electrotechnical vocabulary — Chapter 161: Electromagnetic compatibility*.

CISPR 12:1990, *Limits and methods of measurement of radio interference characteristics of vehicles, motor boats, and spark-ignited engine-driven devices.*

CISPR 16-1:1993, *Specification for radio disturbance and immunity measuring apparatus and methods — Part 1: Radio disturbance and immunity measuring apparatus*.