SLOVENSKI STANDARD
SIST EN 12016:2005

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Nadomeģ a:
SIST EN 12016:1999

Elektromagnetna združljivost - Standard skupine izdelkov za dvigala, tekoļ e stopnice in trakove za osebe (steze) - Odpornost proti motnjam

Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Immunity

Elektromagnetische Verträglichkeit - Produktfamilien-Norm für Aufzüge, Fahrtreppen und Fahrsteige - Störfestigkeit

Compatibilité électromagnétique - Norme famille de produits pour ascenseurs, escaliers mécaniques et trottoirs roulants - Immunité

Ta slovenski standard je istoveten z: **EN 12016:2004**

ICS:

33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general
91.140.90	Dvigala. Tekoļ e stopnice	Lifts. Escalators

SIST EN 12016:2005 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12016

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Supersedes EN 12016:1998

English version

Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Immunity

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This European Standard was approved by CEN on 28 November 2003.

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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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 12016:2004) has been prepared by Technical Committee CEN/TC 10 “Lifts, escalators and moving walks”, 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of an identical text or by endorsement, at the latest by June 2005, and conflicting national standards shall be withdrawn at the latest by June 2006.

This document supersedes EN 12016:1998.

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 EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

The test levels and the performance criteria which are given in this standard reflect the fact that lifts, escalators and moving walks when in use, consist, generally of self contained apparatus (e.g. machine room, car, etc.).

The related EMC product family standard for emission is:

EN 12015:2004, *Electromagnetic compatibility — Product family standard for lifts, escalators and* moving walks - *Emission.*

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

Introduction

This European Standard has been prepared to provide one means of conforming to the requirements of the Electromagnetic Compatibility (EMC) Directive, the Lifts Directive and the Machinery Directive. The requirements of this European Standard have been specified so as to ensure an adequate level of electromagnetic immunity for most cases.

The apparatus concerned and the extent to which hazardous situations and events are covered are indicated in the scope of this document.

Where the provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for apparatus that have been designed and built according to the provisions of this type C standard.

Test levels and immunity performance criteria are defined for:

— apparatus which are safety components or are used in conjunction with safety components, (safety circuits) ;

— apparatus used in general function circuits.

The test levels and requirements are given on the basis that the apparatus, generally, is connected to a low voltage system.

The requirements for safety circuits provide one means of demonstrating conformity with the essential health and safety requirements of the Lifts Directive and the Machinery Directive with regard to EMC immunity.

Due to the size of an installed lift, it becomes impracticable to test the total assembly either in a test laboratory or in situ where the uncontrolled environment may also influence the test procedures and results. This applies also to measurements within the car. Similar considerations regarding dimensions apply equally to the testing of escalators and moving walks.

The following explains the rational to the revision of the standard EN 12016:1998:

a) Important changes

The scope excludes severe electromagnetic environments and apparatus already proven to be in conformity with the Electromagnetic Compatibility Directive.

The term "installation" has been changed to "system". This is due to the fact that official interpretation defines that fixed installations are not covered by the conformity assessment requirements of the EMC Directive. The scope of the standard is applicable to the apparatus and assembly of apparatus of lifts and escalators and assembly into systems.

New requirements on radio frequency electromagnetic field above 500 MHz, these are extended to cover the digital mobile telephone services up to 1960 MHz.

New requirements for surge testing on safety circuits.

New requirements on Radio frequency electromagnetic field regarding safety devices as defined by the Lifts Directive and mobile telephones or radio transmitters as a result of a risk assessment. It is assumed that mobile telephones and radio transmitters are not used at frequencies up to 166 MHz near safety circuits of equipment covered by the scope of this standard.

Higher requirements on several environmental phenomena considering the progress on EMC technology and the results of the risk assessment.

New requirements have been introduced for immunity to mains power supply voltage interruptions and voltage dips.

b) Environmental issues

Lifts, escalators and moving walks are systems whose component apparatus/assembly of apparatus are distributed (and some of which move) throughout the building. The definition in EMC terms of the use of the building (residential or industrial) cannot be predetermined or assumed to be fixed. Therefore, to cover requirements in all cases, no differentiation between environments has been made and a single set of limits has been maintained.

Severe electromagnetic environments have not been considered. Examples of these are: radio transmitter stations, railways and metros, heavy industrial plant, electricity power stations. Additional tests and immunity measures may need to be taken on apparatus to be used in these environments.

It is assumed that no ports connected to safety circuit only are rated at currents greater than 100 amps.

1 Scope

This European Standard specifies the immunity performance criteria and test levels for apparatus used in lifts, escalators and moving walks which are intended to be permanently installed in buildings including the basic safety requirements in regard to their EMC environment. These levels represent essential EMC requirements.

The standard refers to normal EMC conditions as existing in residential, office and industrial buildings, but does not cover more severe EMC environments such as:

- radio transmitter stations;
- railways and metros;
- heavy industrial plant;
- electricity power stations

which need additional investigations.

This standard addresses commonly known EMC related hazards and hazardous situations relevant to lifts, escalators and moving walks when they are used as intended and under the conditions foreseen by the lift installer or escalator and/or moving walk manufacturer.

This standard addresses the environmental conditions stated in the EN 81 series of standards and EN 115 (humidity, temperature, etc.), so far as they are related to EMC performance.

However:

- performance criteria and test levels for apparatus/assembly of apparatus used in general function circuits do not cover situations with an extremely low probability of occurrence;
- this standard does not apply to other apparatus already proven to be in conformity to the EMC Directive, and not related to the safety of the lift, escalator or moving walk, such as lighting apparatus, communication apparatus, etc.

This standard is not applicable to lifts, escalators, moving walks and related safety components manufactured before the date of publication of this standard by CEN.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 81-1, *Safety rules for the construction and installation of lifts — Part 1: Electric lifts.*

EN 81-2, *Safety rules for the construction and installation of lifts — Part 2: Hydraulic lifts.*

EN 115, *Safety rules for the construction and installation of escalators and passenger conveyors.*

EN 1070, *Safety of machinery – Terminology.*

EN 61000-4-2, *Electromagnetic Compatibility (EMC) — Part 4-2: Testing and measurement techniques; Electrostatic discharge immunity test (IEC 61000-4-2:1995).*

EN 61000-4-3, *Electromagnetic compatibility (EMC) — Part 4-3: Testing and measurement techniques; Radiated, radio-frequency, electromagnetic field immunity test (IEC 61000-4-3:2002).*

EN 61000-4-4, *Electromagnetic compatibility (EMC) — Part 4-4: Testing and measurement techniques — Electrical fast transient/burst immunity test (IEC 61000-4-4:1995).*

EN 61000-4-5, *Electromagnetic compatibility (EMC) — Part 4-5: Testing and measurement techniques; Surge immunity test (IEC 61000-4-5:1995).*

EN 61000-4-6, *Electromagnetic Compatibility (EMC) — Part 4-6: Testing and measurement techniques; Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6:1996).*

EN 61000-4-11, *Electromagnetic Compatibility (EMC) — Part 4-11: Testing and measurement techniques — Voltage dips, short interruptions and voltage variations immunity tests (IEC 61000-4-11:1994).*

EN 61000-6-1, *Electromagnetic compatibility – Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1:1997, modified).*

EN 61000-6-2, Electromagnetic Compatibility (EMC) — Part 6-2: Generic standards - Immunity for industrial environments *(IEC 61000-6-2:1999, modified*.

IEC 60050-161, *International Electrotechnical Vocabulary - Chapter 161: Electromagnetic compatibility.*

3 Terms and definitions

For the purpose of this European Standard, the terms and definitions given in EN 1070, EN 61000-6-1, EN 61000-6-2, IEC 60050-161 and the following apply.

3.1
system
lift escalator or moving walk comprising assembly of apparatus with electrical and electronic equipment and interconnections

NOTE See Figure 1 and Figure 2 as examples.

3.2
assembly of apparatus
arrangement of interconnected apparatus, which can be tested together

NOTE See Figure 1 and Figure 2 as examples.

3.3
apparatus
assembly of components with an intrinsic function as defined by its manufacturer

NOTE 1 See Figure 1 and Figure 2 as examples.

NOTE 2 Safety components listed by Annex IV of the Lifts Directive are considered as apparatus.

3.4
port
particular interface of specified apparatus/assembly of apparatus with the external electromagnetic environment

NOTE See Figure 3 as example.

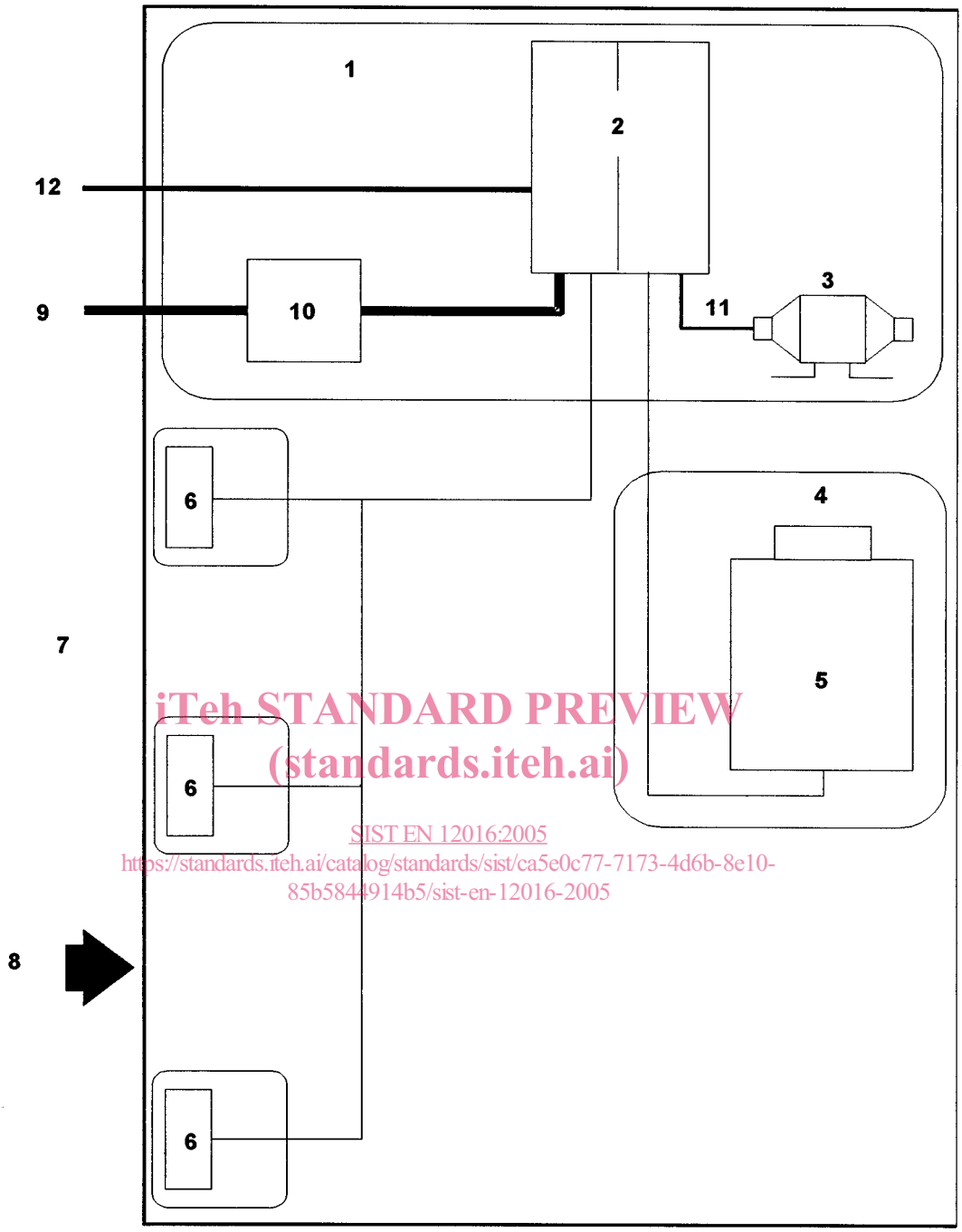
3.5
enclosure port
physical boundary of apparatus/assembly of apparatus through which electromagnetic fields may radiate or impinge

NOTE See Figure 3 as example.

3.6
safety circuit
circuit containing electronic components forming an electric safety device as defined in EN 81-1, EN 81-2

NOTE Safety components listed by Annex IV of the Lifts Directive are considered to be safety circuits.

3.7
general function circuit
circuitry used in apparatus which does not incorporate safety circuits



Key

	Assembly of apparatus		
1	Machinery space	7	Landings
2	Main control / control cabinet	8	System boundary
3	Machine	9	AC – and/or DC power ports
4	Door control	10	Main switch
5	Lift car	11	Output power port
6	Apparatus installed at the landing (e.g. push buttons, indicators)	12	Ports for monitoring and remote alarm systems (Signal and control ports)

Figure 1 — EMC example (immunity) for lift systems