SLOVENSKI STANDARD
SIST EN 12015:2020

01-oktober-2020

Nadomešča:
SIST EN 12015:2014

Elektromagnetna združljivost - Standard družine izdelkov za dvigala (lifte), tekoče stopnice in tekoče steze - Oddajanje motenj

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

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

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

Ta slovenski standard je istoveten z: **EN 12015:2020**

ICS:

33.100.10	Emisija	Emission
91.140.90	Dvigala. Tekoče stopnice	Lifts. Escalators

SIST EN 12015:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12015

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ICS 33.100.10; 91.140.90

Supersedes EN 12015:2014

English Version

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

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

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

This European Standard was approved by CEN on 13 April 2020.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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Contents

Page

European foreword

This document (EN 12015:2020) 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of an identical text or by endorsement, at the latest by December 2020, and conflicting national standards shall be withdrawn at the latest by December 2020.

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

This document supersedes EN 12015:2014.

This document has been prepared under a standardization request 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 limits given in this European Standard recognize the fact that the product family covers a total range of lifts, escalators and moving walks used in residential buildings, offices, hospitals, hotels, industrial plants, etc. and that lifts, escalators and moving walks are deemed to have their own dedicated power supply and be connected with the consent of the electrical supplier to a low impedance source.

The related EMC product family standard for immunity is:

EN 12016, *Electromagnetic compatibility — Product family standard for lifts, escalators and moving walks — Immunity*

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

Introduction

This document is a Type C standard as stated in EN ISO 12100.

This document has been prepared to provide one means of complying with the requirements of the Electromagnetic Compatibility (EMC) Directive. The requirements of this document have been specified so as to ensure a level of electromagnetic emission which will cause minimal disturbance to other equipment. The levels, however, do not cover the following cases:

a) where the probability of an occurrence likely to produce emissions in excess of those which would normally be experienced is extremely low, e.g. the emergency stopping of a lift, escalator or moving walk under a fault condition;

b) where highly susceptible apparatus will be used in the close proximity of the equipment covered by this document, in which case further measures may have to be taken to:

   1) reduce the level of electromagnetic emission to below that specified in this document; or

   2) increase the immunity of the affected apparatus.

The given emission limits, on the basis that equipment of the product family range may be installed both indoor and outdoor in all types of building, involves the switching of heavy currents and high inductive loads and, generally, is connected to a low voltage system.

Values for the harmonic emission limits are taken from the harmonized standard EN 61000-3-12:2011. Taking into account the characteristics and environment of lifts, escalators and moving walks, these harmonic values are applicable for all input currents without current limitation stated by EN 61000-3-12:2011.

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.

1 Scope

This document specifies the emission limits in relation to electromagnetic disturbances and test conditions for lifts, escalators and moving walks, which are intended to be permanently installed in buildings. These limits however, may not provide full protection against disturbances caused to radio and TV reception when such equipment is used within distances given in Table 1.

This document is not applicable for apparatus which are manufactured before the date of its publication as EN.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 55011:2016[1)], *Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement (CISPR 11:2015)*

EN 55014-1:2017, *Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission (CISPR 14-1:2016/COR1:2016)*

EN 55032:2015[2)], *Electromagnetic compatibility of multimedia equipment - Emission Requirements (CISPR 32:2015)*

EN IEC 61000-3-2:2019, *Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase) (IEC 61000-3-2:2018)*

EN 61000-3-12:2011, *Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase (IEC 61000-3-12:2011)*

EN 61000-6-3:2007[3)], *Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:2006)*

EN 61000-6-4:2007[4)], *Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments (IEC 61000-6-4:2006)*

IEC 61000-3-11:2017, *Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current <= 75 A and subject to conditional connection*

1) This document is impacted by the amendment EN 55011:2016/A1:2017.

2) This document is impacted by the corrigendum EN 55032:2015/AC:2016-07.

3) This document is impacted by the amendment EN 61000-6-3:2007/A1:2011 and the corrigendum EN 61000-6-3:2007/A1:2011/AC:2012.

4) This document is impacted by the amendment EN 61000-6-4:2007/A1:2011.

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions given in EN 61000-6-3:2007, EN 61000-6-4:2007 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp/ui

3.1
apparatus
assembly of components with an intrinsic function as defined by its manufacturer

Note 1 to entry: See Figure 1 and Figure 2 as examples.

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

Note 1 to entry: See Figure 1 and Figure 2 as examples.

3.3
balanced three-phase equipment
three-phase equipment which is connected to the three line conductors of a three-phase supply and in which the three line or phase currents are designed to be identical in amplitude and wave-shape, each being displaced from the other two by one-third of a fundamental period

[SOURCE: EN 61000-3-12:2011, 3.7]

3.4
enclosure port
physical boundary of the apparatus/assembly of apparatus through which electromagnetic fields can radiate or impinge

Note 1 to entry: See Figure 3 as an example.

3.5
hybrid equipment
combination of a balanced three-phase load and one or more loads connected between phase and neutral or between phases

[SOURCE: EN 61000-3-12:2011, 3.9]

3.6
machine/motor port
A.C./D.C. power supply port of the apparatus/assembly of apparatus containing active electronic circuits connected to the machine/motor

Note 1 to entry: Active electronic circuits comprise electronic components such as transistors, thyristors, digital ICs, microprocessors, and oscillators switching at a variable or fixed rate (switching/clock frequency). An LED display circuit connected to a battery is not an active electronic circuit if the current is limited only by a resistor or by a transistor operating linearly, but it is an active electronic circuit if the current is pulsed.

Note 2 to entry: Controlled speed drive motor supply output is an active electronic circuit. Direct on line or star-delta starting of motors, hoisting and hydraulic pump motors are not active electronic circuits.

Note 3 to entry: Controlled speed drive motor supply output is a machine/motor port. Brake coil is not machine/motor port.

3.7
partial weighted harmonic current
PWHC
total r.m.s. value of a selected group of higher order harmonic current components (in this International Standard from order 14 to order 40), weighted with the harmonic order *h*

$$PWHC = \sqrt{\sum_{h=14}^{40} h \cdot I_h^{\,2}}$$

Note 1 to entry: The partial weighted harmonic current is employed in order to ensure that the effects of the higher order harmonic currents on the results are reduced sufficiently and individual limits need not be specified.

[SOURCE: EN 61000-3-12:2011, 3.2]

3.8
port
particular interface of the specified apparatus/assembly of apparatus with the external electromagnetic environment

Note 1 to entry: See Figure 3 as an example.

3.9
reference current
I_{ref}

value of the r.m.s. input current of the system (equipment) determined according to EN 61000-3-12:2011, 4.1 and used to establish emission limits

[SOURCE: EN 61000-3-12:2011, 3.12, modified – The term “system” and reference to EN 61000-3-12:2011, 4.1 have been added.]

3.10
root mean square
r.m.s.
effective value of the current

3.11
short circuit ratio
R_{sce}
ratio of the short circuit power of the source to the apparent power of the load(s)

Note 1 to entry: Short circuit ratio is defined by EN 61000-3-12:2011, 3.14.

3.12
system (equipment)
lift, escalator or moving walk comprising assembly of apparatus with electrical and electronic equipment and interconnections

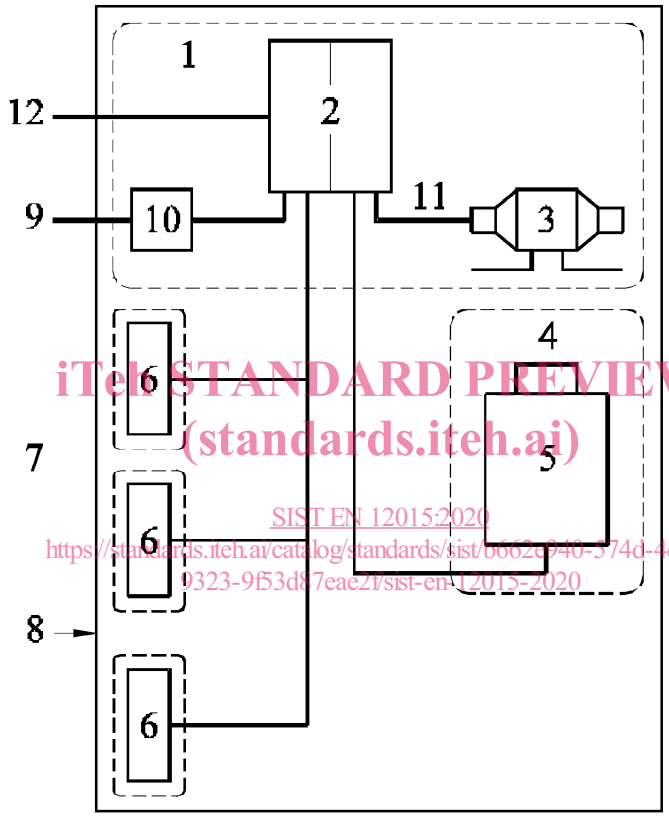
Note 1 to entry: See Figure 1 and Figure 2 as examples.

Note 2 to entry: Term “system” is intended as “equipment” in relation to application of EN 61000-3-12:2011.

3.13
total harmonic current
THC
total r.m.s. value of the harmonic current components of orders 2 to 40

$$THC = \sqrt{\sum_{h=2}^{40} I_h^2}$$

[SOURCE: EN 61000-3-12:2011, 3.1]

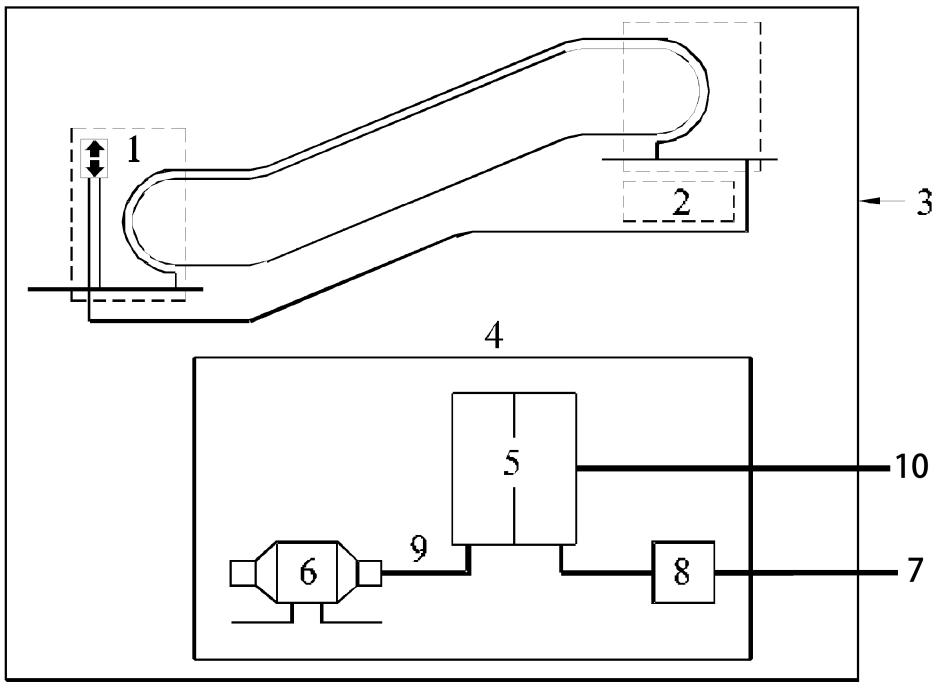


Key

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. pushbuttons, indicators)	12	ports for monitoring and remote alarm systems

Figure 1 — EMC model example (emission) for lift systems

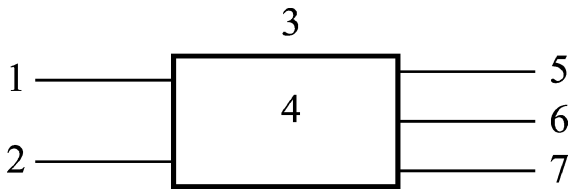


Key

▭	assembly of apparatus
1	control panels
2	machinery space (see 4 to 10)
3	system boundary
4	machinery space
5	main control/control cabinet
6	machine
7	AC – and/or DC power ports
8	main switch
9	output power port
10	ports for monitoring

NOTE The machinery space can also be an external room.

Figure 2 — EMC model example (emission) for escalator and moving walk systems



Key

1	AC power port	5	ground port
2	DC power port	6	signal/control port
3	enclosure port	7	machine/motor port
4	apparatus/assembly of apparatus		

Figure 3 — Examples of ports