



**SLOVENSKI STANDARD**  
**SIST EN 60439-1:1995/A11:1998**  
**01-junij-1998**

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**Low-voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type-tested assemblies - Amendment A11**

Low-voltage switchgear and controlgear assemblies -- Part 1: Type-tested and partially type-tested assemblies

Niederspannung-Schaltgerätekombinationen -- Teil 1: Typgeprüfte und partiell typgeprüfte Kombinationen

Ensembles d'appareillage à basse tension -- Partie 1: Ensembles de série et ensembles dérivés de série

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**Ta slovenski standard je istoveten z: EN 60439-1:1994/A11:1996**

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**ICS:**

29.130.20	Nizkonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60439-1/A11**

February 1996

UDC 621.316.54:621.3.027.2:620.1  
ICS 29.120.60

Descriptors: Switchgear and controlgear, low voltage, switchgear and controlgear assembly, type tested assembly, partially type tested assembly, definitions, characteristics, tests

English version

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This amendment A11 modifies the European Standard EN 60439-1:1994; it was approved by CENELEC on 1995-11-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 Central Secretariat or to any CENELEC member.

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

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

## Foreword

This amendment was prepared by the CENELEC Technical Committee TC17D, Low-voltage switchgear and controlgear assemblies.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A11 to EN 60439-1:1994 on 1995-11-28.

The following dates were fixed:

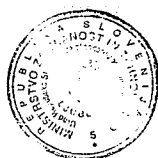
- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-11-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1996-11-01

For products which have complied with EN 60439-1:1994 and its amendment A1:1995 before 1996-11-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2001-11-01.

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**5.1 Add:**

t) Environment 1 or 2 (see 7.10.1)

**6.2.10 Replace by:**

6.2.10 Consideration of appropriate remedies against conducted and radiated disturbances other than EMC.

Consideration of appropriate remedies against EMC disturbances in environments other than those described in 7.10.1.

**7.10 Replace by:**7.10 *Electromagnetic compatibility (EMC)*7.10.1 *EMC Environment*

Unless subject to special agreement (see 6.2.10), ASSEMBLIES conforming to this standard are intended for use in the environmental condition Environment 1 and/or Environment 2 as described below.

**Environment 1**

Mainly relates to low-voltage public network such as residential, commercial and light-industrial locations/installations, as per clause 5 of EN 50081-1.

NOTE - The following list, although not comprehensive, gives an indication of locations which are included.

- residential properties, e. g. houses, apartments;
- retail outlets, e. g. shops, supermarkets;
- business premisses, e. g. offices, banks;
- areas of public entertainment, e. g. cinemas, public bars, dance halls;
- outdoor locations, e. g. petrol stations, car parks, sport centres;
- light-industrial locations, e. g. workshops, laboratories, service centres.

**Environment 2**

Mainly relates to low-voltage non-public or industrial networks/locations/installations, as per clause 5 of EN 50081-2.

NOTE - Industrial locations are characterized by one or more of the following conditions:

- industrial, scientific and medical apparatus, e. g. working machines are present;
- heavy inductive or capacitive loads are frequently switched;
- currents and associated magnetic fields are high.

The environmental condition 1 or 2 shall be stated in the manufacturer's documentation.

**7.10.2 Requirement for testing**

ASSEMBLIES are in most cases manufactured or assembled on an one-off basis, incorporating a more or less random-combination of devices and components.

No EMC immunity or emission tests are required on final ASSEMBLIES, if the following conditions are fulfilled:

- a) The incorporated devices and components are designed for the specified environment of 7.10.1 in line with the relevant product or generic EMC standards.
- b) The internal installation and wiring is carried out in accordance with the instruction of the devices and components manufacturers (arrangement with regard to mutual influences, cable screening, earthing etc.).

In all other cases the EMC requirements are to be verified by test as per 8.2.9.

### 7.10.3 *Immunity*

#### 7.10.3.1 *ASSEMBLIES not incorporating electronic circuits*

ASSEMBLIES not incorporating electronic circuits are not sensitive to normal electromagnetic disturbances and require no immunity testing.

#### 7.10.3.2 *ASSEMBLIES incorporating electronic equipment*

Electronic equipment incorporated in ASSEMBLIES shall comply with the immunity requirements of the relevant product or generic EMC standard and shall be suitable for the specified EMC environment.

NOTE - A simple rectifier circuit is not sensitive to normal electromagnetic disturbances and, therefore, does not require immunity test.

### 7.10.4 *Emission*

#### 7.10.4.1 *ASSEMBLIES not incorporating electronic circuits*

ASSEMBLIES not incorporating electronic circuits can generate electromagnetic disturbances only during occasional switching operations. This is, however, limited to switching overvoltages the duration of which is measured in milliseconds and the magnitude of which does not exceed the rated impulse withstand voltage of the relevant circuit(s).

The frequency, the level and the consequences of these emissions are considered as part of the normal electromagnetic environment of low-voltage installations.

Therefore the requirements for electromagnetic emission are deemed to be satisfied and no verification is necessary.

#### 7.10.4.2 *ASSEMBLIES incorporating electronic circuits*

ASSEMBLIES incorporating electronic circuits (e. g. chopped supply, circuits incorporating microprocessors with high frequency clocks) may generate continuous electromagnetic disturbances. The individual devices and components containing electronic circuits shall comply with the requirements of the relevant product or generic EMC standard and the specified EMC environment.

Add a new subclause:

### 8.2.9 *EMC tests*

ASSEMBLIES or parts of them which do not fulfill the requirements of 7.10.2 a) and b) shall be subjected to the following tests, as applicable:

### 8.2.9.1 *Immunity tests*

The immunity has to be verified by the following tests:

Type of test	test level required <sup>(1)</sup>
1,2/50 $\mu$ s - 8/20 $\mu$ s surges IEC 1000-4-5	2 kV (line to earth) 1 kV (line to line)
Fast transient bursts IEC 1000-4-4	2 kV
Electromagnetic field IEC 1000-4-3	10 V/m
Electrostatic discharges IEC 1000-4-2	8 kV/air discharge

### 8.2.9.2 *Emission tests*

The emission limits shall be verified in accordance with the following standards:

- EN 50081-1 for Environment 1 (see 7.10.1)
- EN 50081-2 for Environment 2 (see 7.10.1)

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(1) This corresponds to level 3 in IEC 1000-4.

## Annex ZA (normative)

## Other international publications quoted in this standard with the references of the relevant European publications

Add:

European Standards

EN 50081-1	1992	Electromagnetic compatibility - Generic emission standard Part 1: Residential, commercial and light industry
EN 50081-2	1993	Part 2: Industrial environment
EN 50082-1	1992	Electromagnetic compatibility - Generic immunity standard Part 1: Residential, commercial and light industry
EN 50082-2	1995	Part 2: Industrial environment

Add to the list of IEC publications:

1000-4-2	1995	Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques Section 2: Electrostatic discharge immunity test (Basic EMC Publication)	EN 61000-4-2	1995
1000-4-3	1995	Section 3: Radiated, radio-frequency, electromagnetic field immunity test <a href="http://standards.iteh.ai/catalog/standards/sist/0cbf446b-1a54-47ad-8a6d-34f7827768b/sist-en-60439-1-1995-a11-1998">SIST EN 60439-1:1995/A11:1998</a>	-	-
1000-4-4	1995	Section 4: Electrical fast transient/burst immunity test (Basic EMC Publication)	EN 61000-4-4	1995
1000-4-5	1995	Section 5: Surge immunity test	EN 61000-4-5	1995