
Elektromagnetna združljivost (EMC) - 4-27. del: Preskusne in merilne tehnike - Preskus odpornosti proti nesimetriji za opremo z vhodnim tokom do 16 A na fazo - Dopolnilo A2

Amendment 2 - Electromagnetic compatibility (EMC) - Part 4-27: Testing and measurement techniques - Unbalance, immunity test for equipment with input current not exceeding 16 A per phase

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Amendement 2 - Compatibilité électromagnétique (CEM) - Partie 4-27: Techniques d'essai et de mesure - Essai d'immunité aux déséquilibres.

Ta slovenski standard je istoveten z: EN IEC 61000-4-27:2000/prA2:2025

ICS:

33.100.20 Imunost

Immunity

SIST EN IEC 61000-4-27:2002/oprA2:2025

en



77A/1236/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 77A : EMC - LOW FREQUENCY PHENOMENA

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France

SECRETARY:

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OF INTEREST TO THE FOLLOWING COMMITTEES:

HORIZONTAL FUNCTION(S):

TC 77/SC 77A Horizontal Basic EMC

ASPECTS CONCERNED:

Electromagnetic Compatibility

☒ SUBMITTED FOR CENELEC PARALLEL VOTING☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING**Attention IEC-CENELEC parallel voting**

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

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TITLE:

Amendment 2 - Electromagnetic compatibility (EMC) - Part 4-27: Testing and measurement techniques - Unbalance, immunity test

PROPOSED STABILITY DATE: 2025

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INTRODUCTION

The CDV proposed for Amendment 2 to IEC 61000-4-27 Ed. 1.1 (= IEC 61000-4-27:2000 plus IEC 61000-4-27/AMD1:2009) is based on 77A/1189/DC, 77A/1198A/INF and follows 77A/1212/RR, 77A/1229/CD, 77A/1234/CC.

This CDV contains the following main changes in comparison with IEC 61000-4-27 ED 1.1:

The angles in table 1 (test levels) suggest a three-phase system with a negative phase sequence while the intention is to have a positive phase sequence and thus the signs and values of all angles in Table 1 should be corrected. In addition, the value of k_{u2} of class 2, test 3 is 28 % instead of 25 %. The Table 1 is modified accordingly

Class X is defined as special and levels 2 and 3 refers to Annex D instead of 61000-2-4.

U_N is deleted from Table 1, and it is moved to the new clause 3 (Terms, definitions, and abbreviations). The definition 3.5 U_N nominal phase to neutral voltage is added.

In addition, the definition of rise and fall time is added (as in 61000-4-11 ed 3).

The text in Note 1 in Table 1 is deleted and replaced by " U_b is lagging against U_a , and U_c is leading against U_a ".

In table 1 Add NOTE 2: The product committee may specify any test level; however, for equipment connected to public supply systems, it is recommended that the levels should not be lower than those defined for class 2.

The sentence under Table 1 becomes NOTE 2 in the Table 1.

Some changes are introduced also in Table 2 (Characteristics of the generator). Main changes:

- Modified output current capability which must be able to provide a crest factor of at least 3 when U_N applied to calibration load.
- Modified voltage rise time adding (from 10 % to 90 %)
- Modified phase shifting
- Modified phase accuracy (put 50 Hz or 60 Hz).

In clause 7 a sentence is added: The equipment under test (EUT) is set up at a steady mains voltage

In clause 8.2 the last sentence "After each group of tests a full functional check shall be performed." is deleted. In addition, Figure 2 is simplified.

In clause 10 updated Figures 1 and 2 are included.

A new informative Annex B is proposed which includes two different calculation methods:

- method 1 does not require complex or vector calculus.
- method 2 uses phasors and matrices but is more compact.

Both methods are mathematically equivalent.

TEXT OF THE AMENDMENT PROPOSAL

The title of Clause 3 “Definitions” is modified to:

3 Terms and definitions

3.3

unbalance factor k_{u2} (%)

Delete “ $k_{u2} = 100 \% (U_2 / U_1)$ ” and replace with the following text:

$$k_{u2} = \frac{|U_2|}{|U_1|} \text{ (negative-sequence voltage / positive-sequence voltage)}$$

Add the following new definitions:

3.5 U_N

nominal phase to neutral voltage

3.6

rise time

interval of time between the instants at which the instantaneous value of a transition first reaches a specified lower value and then a specified upper value

NOTE The lower and upper values are fixed at 10 % and 90 % of the transition magnitude.

[SOURCE: IEC 60050-161:1990, 161-02-05]

3.7

fall time

interval of time between the instants at which the instantaneous value of a transition first reaches a specified upper value and then a specified lower value

NOTE The lower and upper values are fixed at 10 % and 90 % of the transition magnitude.

NOTE This definition is derived from IEC 60050-161:1990, 161-02-05.

5 Test Levels

In Table 1 “test levels”:

- *The angles are modified from a three-phase system with a negative to a positive phase sequence and thus the signs and values of all angles in Table 1 are to be corrected.*
- *The value of k_{u2} of class 2, test 3 is 28 % instead of 25 %.*
- *Test levels for Class X are tagged (“special”).*
- *NOTE 1 and NOTE 2 are modified.*

Hence, Table 1 is modified as follows:

Test number	Test level Class 1	Test level for Class 2					Test level for Class 3					Test level for Class X
		Phase	Amplitude % U_N	Angle °	k_{u2} %	Time t_D s	Phase	Amplitude % U_N	Angle	k_{u2} %	Time t_D s	
Test 1	No test required	U_a	100	0°	6	30	U_a	100	0°	8	60	special
		U_b	95,2	-125°			U_b	93,5	-127°			
		U_c	90	+120°			U_c	87	+120°			