



SLOVENSKI STANDARD
SIST EN 12966-1:2005/kprA1:2009
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Road vertical signs - Variable message traffic signs - Part 1: Product standard

Vertikale Verkehrszeichen - Wechselverkehrszeichen - Teil 1: Produktnorm

Signaux de signalisation routière verticale - Panneaux à messages variables - Partie 1:
Norme produit

Ta slovenski standard je istoveten z: EN 12966-1:2005/prA1

ICS:

93.080.30	Cestna oprema in pomožne naprave	Road equipment and installations
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EUROPEAN STANDARD
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FINAL DRAFT
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English Version

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Vertikale Verkehrszeichen - Wechselerkehrszeichen - Teil 1: Produktnorm

This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 226.

This draft amendment A1, if approved, will modify the European Standard EN 12966-1:2005. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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 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

Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 12966-1:2005/prA1:2009 (E)**Foreword**

This document (EN 12966-1:2005/prA1:2009) has been prepared by Technical Committee CEN/TC 226 "Road equipment", the secretariat of which is held by AFNOR.

This document is currently submitted to the Unique Acceptance Procedure.

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.

Annex ZA includes the requirements of the Mandate given under the EU Construction Products Directive (89/106). Only if the requirements specified in Annex ZA are met, the CE marking will be affected.

The amendment of the following parts of EN 12966:2005 have become necessary in the light of experience in using the standard.

1 Modifications to the Foreword

Replace the 6th paragraph with the following:

"Road vertical signs - Variable message traffic signs
- Part 1: (this part) *Variable message signs (VMS)*
- Part 2: *Initial type testing*
- Part 3: *Factory production control*".

Before the last paragraph add the following new paragraph: "Where a Member State has no legal requirement for a characteristic manufacturers are not required to determine or declare the value of that characteristic."

2 Modification to the Introduction

Add the following new paragraph at the end:

"In Member States which have no legal requirement for any of the characteristics in this standard manufacturers are not required to determine and declare the performance of those characteristics."

3 Modification to the Scope

Paragraph 5, line 1, add "externally illuminated" after "continuous signs and".

Paragraph 7, delete exclusion "b) Portable and temporary VMS" and renumber accordingly.

Add the following new item: "e) sign luminance control."

Add the following new paragraph: "The control of the luminance of luminous signs with respect to the ambient light is not covered by this standard."

4 Modification to Clause 2, Normative references

Replace the title of EN 60068-2-64 with "Environmental testing — Part 2: Test methods — Test Fh: Vibration, broad band random (digital control) and guidance (IEC 60068-2-64;1993 + Corrigendum 1993)".

5 Modification to Clause 5, General design requirements

In the note, replace "Informative" with "informative".

6 Modification to 7.1, Classification

In note 2, delete "Annex E" and replace with "D.3".

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In note 2, delete "effective".

7 Modification to 7.3, Luminance

Delete the 1st paragraph and replace with the following:

"The luminance shall be measured in accordance with 9.3.2, under external illumination from a solar simulator and with the test module switched on. With settings prescribed by the manufacturer, the luminance values measured for the test module shall comply with those of the Tables 4a to 4f that are relevant for the colours produced by the test module."

Add the following new note: "NOTE 2 Specific design issues are covered in D.3, where guidelines are given on class combinations."

Replace "NOTE" with "NOTE 1".

Paragraph 4, line 1 replace "For" with "Additionally, for".

8 Modification to 7.4, Luminance ratio

Paragraph 1, line 3, replace "9.3.2.4" with "9.3.2.3".

Delete the following last sentence: "Class R3 is only recommended for specific applications, see E.5 Effective class-combinations".

Add "NOTE 2 Specific design issues are covered in D.3, where guidelines are given on class combinations."

Renumber the 1st note "NOTE 1".

9 Modification to 7.5, Beam width

Replace the 2nd paragraph with the following:

"Within the beam width angles, the measured luminance shall not be lower than 50 % of the measured luminance on the reference axis. Table 6 shows the seven beam width classes."

Replace the Note with the following:

"NOTE 1 Figure 2 shows examples of passed and not passed luminance distributions for the white/yellow colour, class luminance L3, and beam width class B2 at a sign illuminance of 40 000 lx.

NOTE 2 Specific design issues are covered in D.3, where guidelines are given on class combinations."

In Figure 2, delete key 3) and renumber the rest.

After Figure 2 add the following new paragraph:

"The luminance for this colour at the reference axis should be in the range 10 540 to 52 700 cd/m². Suppose the actual measured luminance at the reference axis obeys this requirement and is 30 000 cd/m². Then the maximum luminance at all other angles is $1,5 \times 30\,000 = 45\,000$ cd/m². The minimum luminance at within the beam width angles shall not be lower than $0,5 \times 30\,000 = 15\,000$ cd/m². Outside the beam width angles the luminance is allowed to be zero, but never larger than 57 200 cd/m²."

10 Modification to 8.1, Classification

In Table 7, delete row 2 and substitute the following:

"Protection	P1, P2, P3	P3 is the most restrictive"
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11 Modification to 8.2.2

Replace the heading with the following: "Resistance of electrical / electronic components to the effects of pollution"

In the 1st paragraph, delete "state" and substitute "declare".

Delete the remaining paragraphs.

12 Modification to 8.2.4, Degrees of protection provided by enclosures (IP-level)

1st paragraph, line 2, add "test modules with a pollution degree level of 2, 3 or 4 shall" after "EN 60529 category 2) and".

In Table 9, change IP45 to IP 44, IP55 to IP54 and IP66 to IP56.

13 Modification to 8.3.1, General

Insert as 1st paragraph the following:

"VMS shall be designed to ensure reliable transfer of all static and dynamic forces to the fixing and mounting structures. The walls of the housing shall be designed to satisfy the static requirements."

14 Modification to 8.3.4, Impact resistance

Replace the existing text with the following:

"The test modules shall be capable of withstanding impact, and shall be tested in accordance with 9.2.3 Table 13. After the test the test module front panel or parts of it shall show no damage other than small indentations in the front surface; it shall exhibit no cracking.

The test module shall continue to meet all the requirements of the standard"

15 Modification to 8.4.1.2, Nominal voltages

Add the following note:

"NOTE Where low voltages are used, these should be as declared by the manufacturer."

16 Modification to 9.1.2, Dimensions of test modules

At the end of the 2nd paragraph add the following: "Where a production sign is used for testing, the manufacturer shall identify the test area which shall be as defined in 9.3.2.2."

17 Modification to 9.2.3, Environmental and mechanical tests

In Table 13, last section

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Replace "and the" with "other than small indentations in the front surface; it shall exhibit no cracking. The"

In Table 14, replace the 3rd column, 4th row with the following

"0,013 g²/Hz (10 Hz to 50 Hz)

0,013 g²/Hz (50 Hz to 200 Hz with a negative slope 3 dB/octave)

Overall RMS acceleration 1,2 g"

In Table 16 - Severity

Replace "IP x5" to "IP x4" in class P1 and P2 to conform to changes in 8.2.4, Table 9.

Table 17 – Severity

Replace "IP 6x" with "IP 5x" in Class P 3 to conform to changes in 8.2.4, Table 9.

18 Modification to 9.3, Optical performance test methods

Delete title "9.3.2 Luminance and luminance ratio"

Delete "9.3.2.1"

Add title "9.3.2 Luminance and luminance ratio" after "The illumination shall be measured in the reference centre, perpendicular to the reference axis."

19 Modification to 9.3.2.1

Replace the title of this subclause with "Solar simulator".

20 Modification to 9.3.3, Beam width

Add the following note:

"NOTE Beam width may be obtained by measuring luminance intensity and calculating the luminance using the equivalent area."

21 Modification to 9.3.4, Uniformity

In the 2nd paragraph, replace "Table 20" with "Table 19".

Add the following 3rd paragraph:

"A minimum of 25 individual elements shall be measured."

22 Modification to 9.3.5, Colour

Replace the 3rd paragraph with the following:

"The colour of the light emitted shall be carried out for the highest and the lowest setting specified by the manufacturer according to 7.3."

23 Modification to Clause 10, Product classification codes

Item b), delete "D3" from list.

Delete "Pollution D1, D2, D3 & D4". Renumber the remaining item 3) into 2).

24 Modification to Annex A

In Equation (A.1) add "measured in the direction of reference axis" to definition of "L".

25 Modification to Annex C

Replace the title of Annex C with the following:

"Guidance on graphics for discontinuous light emitting signs"

26 Modification to C.2

In items a) and b), bullet point 4, replace twice "(c)" with "l".

27 Modification to Annex D

Replace the title of Annex D with the following:

"Guidance on dimensions and class combinations for discontinuous light emitting signs"

28 Modification to D.2

In the title of D.2, delete "and tolerances for text".

Replace the existing text in sub-clause D.2 with the following:

"D.2.1 Text

The different parameters of are defined in Annex F (informative).