



**SLOVENSKI STANDARD**  
**SIST EN 12899-5:2008/kFprA1:2012**  
**01-december-2012**

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**Stalna vertikalna cestna signalizacija - 5. del: Začetno preskušanje tipa**

Fixed, vertical road traffic signs - Part 5: Initial type testing

Ortsfeste, vertikale Straßenverkehrszeichen - Teil 5: Erstprüfung

Signalisation routière verticale - Signaux permanents fixes - Partie 5 : Essai de type initial

**Ta slovenski standard je istoveten z: EN 12899-5:2007/FprA1**

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**ICS:**

93.080.30	Cestna oprema in pomožne naprave	Road equipment and installations
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**SIST EN 12899-5:2008/kFprA1:2012**      **en,fr,de**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**FINAL DRAFT**  
**EN 12899-5:2007**

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English Version

## Fixed, vertical road traffic signs - Part 5: Initial type testing

Signalisation routière verticale - Signaux permanents fixes -  
Partie 5 : Essai de type initial

Ortsfeste, vertikale Straßenverkehrszeichen - Teil 5:  
Erstprüfung

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 12899-5:2007. 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-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (EN 12899-5:2007/FprA1:2012) 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 is an amendment to EN 12899-5:2007.

The main reason for this amendment is to incorporate in the series of existing standards EN 12899:2007 (Parts 1 to 5), a new standard EN 12899-6, which deals with the visual performance of retroreflective sign face materials.

**EN 12899-5:2007/FprA1:2012 (E)****1 Modification to Foreword**

*Insert the following text between paragraphs 2 and 3:*

"The main reason for this amendment is to incorporate in the series of existing standards EN 12899:2007 (Parts 1 to 5), a new standard EN 12899-6, which deals with the visual performance of retroreflective sign face materials."

*Replace the introductory sentence to the list of parts, as given in paragraphs 4 with the following text:*

"This document is a European Standard in the series of standards EN 12899 on "Fixed, vertical road traffic signs", with the followings parts:"

*In paragraph 5, add also "Part 6: Retroreflective sign face materials" to the end of the list.*

**2 Modification to Clause 2**

*Add "EN 10204, Metallic products — Types of inspection documents".*

*Replace "EN 12899-1:2007" with "EN 12899-1:2007+A1:2013".*

*Replace "EN 12899-2:2007" with "EN 12899-2:2007+A1:2013".*

*Replace "EN 12899-3:2007" with "EN 12899-3:2007+A1:2013".*

*Add:*

*"EN 12899-6:2013, Fixed vertical road traffic signs — Part 6: Performance of retroreflective sign face materials".*

**3 Modification to Clause 3**

*Replace "EN 12899-1:2007" with "EN 12899-1:2007+A1:2013", "EN 12899-2:2007" with "EN 12899-2:2007+A1:2013" and "EN 12899-3:2007" with "EN 12899-3:2007+A1:2013".*

**4 Modification to 4.1.1**

*Delete the 2<sup>nd</sup> paragraph and replace it with the following:*

"Initial type testing shall be performed to show conformity to this standard on first use of this standard for complete sign assemblies (including supports), signs (sign plate including sign faces), retroreflective sheeting, supports and for other major components (sign plates (without sign faces), sign faces (without sign plate), clamps and luminaires), transilluminated traffic bollards, delineator posts and retroreflectors being placed on the market and:"

*Add the following after the NOTE:*

"A cascaded ITT shall be acceptable for all sign face constructions. The ITT shall be completed by tests at the producer to verify his capability to use these types of production processes."

## 5 Addition of 4.1.7

Add sub-clause 4.1.7 as follows:

"

### 4.1.7 Coefficient of retroreflection for traffic signs

The integral method of evaluation of retroreflectivity in EN 12899-6 is not appropriate to be used for the factory production control on fixed vertical traffic signs at the traffic sign producer. For that purpose the initial type testing of retroreflective sheeting and every combination of sign face material shall contain the evaluation of the FPC-Level in accordance with Tables 1 to 4.

**Table 1 — Coefficient of retroreflection  $R_A$  FPC-Level 1 (unit:  $\text{cd}\cdot\text{lx}^{-1}\cdot\text{m}^{-2}$ )**

Geometry of measurements		Colour							
$\alpha$	$\beta_1$ ( $\beta_2 = 0^\circ$ )	White	Yellow	Red	Green	Blue	Brown	Orange	Grey
20'	5°	50	35	10	7	2	0,6	20	30
	30°	24	16	4	3	1	0,2	8	14,4

**Table 2 — Coefficient of retroreflection  $R_A$  FPC-Level 2 (unit:  $\text{cd}\cdot\text{lx}^{-1}\cdot\text{m}^{-2}$ )**

Geometry of measurements		Colour								
$\alpha$	$\beta_1$ ( $\beta_2 = 0^\circ$ )	White	Yellow	Red	Green	Dark Green	Blue	Brown	Orange	Grey
20'	5°	180	120	25	21	14	14	8	65	90
	30°	100	70	14	12	11	8	5	40	50

**Table 3 — Coefficient of retroreflection  $R_A$  FPC-Level 3 (unit:  $\text{cd}\cdot\text{lx}^{-1}\cdot\text{m}^{-2}$ )**

Geometry of measurements		Colour								
$\alpha$	$\beta_1$ ( $\beta_2 = 0^\circ$ )	White	Yellow	Red	Green	Dark Green	Blue	Brown	Orange	Grey
20'	5°	300	195	60	30	20	19	10	150	150
	30°	165	110	33	17	12	11	6	83	80

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Table 4 — Coefficient of retroreflection  $R_A$  FPC-Level 4 (unit:  $\text{cd}\cdot\text{lx}^{-1}\cdot\text{m}^{-2}$ )

Geometry of measurements		Colour								
$\alpha$	$\beta_1$ ( $\beta_2 = 0^\circ$ )	White	Yellow	Red	Green	Dark Green	Blue	Brown	Orange	Grey
20'	5°	425	275	85	40	26	28	14	210	210
	30°	225	145	45	20	13	15	8	110	110

NOTE These tables are valid to be used for the factory production control at the traffic sign producer later on. They are not appropriate to classify the retroreflective sheeting or material combination used referring to EN 12899-6."

## 6 Modification to 4.2.2

Delete Tables 1 and 2 and add the following tables:



"

Table 5 — Applicable clauses and number of test products for ITT of retroreflective sheeting

Essential requirements	Characteristics	Applicable clauses of EN 12899-1:2007 + A1:2013 EN 12899-5:2007 + A1:2013 EN 12899-6:2013	Number and kind of test product for products listed and/or samples
Adhesion	Adhesion of retroreflective sheeting	EN 12899-6:2013 Clause 7	2 identical samples of each combination of sign plate and sign face material to be tested, 1 for test and 1 for reference
Visual characteristics	Daylight chromaticity and luminance factor	EN 12899-6:2013 Clause 5	2 identical samples of each combination of colour and sign face construction, 1 for test and 1 for reference.  Evaluation of FPC-Level for each combination of colour and sign face construction.
	Coefficient of retroreflection	EN 12899-6:2013 Clause 4 Annex A  EN 12899-5:2007+A1:2013 4.1.7 for FPC-Level	
Durability	Accelerated natural weathering	EN 12899-6:2013 6.2	2 identical samples of each combination of colour and sign face construction, 1 for test and 1 for reference. Visual characteristics shall be tested before durability tests
	Accelerated artificial weathering (if chosen by the manufacturer)	EN 12899-6:2013 6.3	2 identical samples of each combination of colour and sign face construction, 1 for test and 1 for reference. Visual characteristics shall be tested before durability tests

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Table 6 — Applicable clauses and number of test products for ITT of supports (described by performance)

Essential requirements	Characteristics	Applicable clauses of EN 12899 -1:2007 + A1:2013	Number and kind of test product for products listed and/or samples
Mechanical resistance to horizontal loads, to bending, to torsion	Resistance to horizontal loads  Resistance to bending  Resistance to torsion	Clause 5	1 complete support <sup>a</sup>
Performance under vehicle impact	Passive safety (if required)	6.3	Requirements according to EN 12767
Durability	Corrosion resistance  Metals Timber Plastics	6.4 <sup>b</sup>	1 complete support
	Resistance to penetration of dust and water <sup>c</sup>	6.1 6.2	1 complete support
	Material characteristic		Inspection certificate on EN 10204 “3.1”
<sup>a</sup> if tested by physical test and not calculated <sup>b</sup> not applicable to all means of surface protection <sup>c</sup> if support provided with compartments for electrical equipment			

**Table 7 — Applicable clauses and number of test products for ITT of supports (described by material grade and geometric characteristics)**

Essential requirements	Characteristics	Applicable clauses of EN 12899 -1:2007 + A1:2013	Number and kind of test product for products listed and/or samples
Mechanical resistance to horizontal loads, to bending, to torsion	Geometrical data Material properties	Clause 5	1 complete support <sup>a</sup>  Material and grade together with geometric characteristics (dimensions) shall be supplied. These shall be sufficient for the purchaser to establish the performance of the product.
Performance under vehicle impact	Passive safety (if required)	6.3	Requirements according to EN 12767
Durability	Corrosion resistance  Metals Timber Plastics	6.4 <sup>b</sup>	1 complete support
	Resistance to penetration of dust and water <sup>c</sup>	6.1 6.2	1 complete support
	Material characteristic		Inspection certificate on EN 10204 "3.1"
<sup>a</sup> if tested by physical test and not calculated <sup>b</sup> not applicable to all means of surface protection <sup>c</sup> if support provided with compartments for electrical equipment			