

## საქართველოს სტანდარტი

გზის მარკირების მასალები-გზის მარკირების მახასიათებელი გზის  
მომხმარებლებისა და გამოცდის მეთოდებისთვის

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

საქართველოს სტანდარტებისა და მეტროლოგიის  
ეროვნული სააგენტო  
თბილისი

სსტ ენ 1436:2018/2018

### საინფორმაციო მონაცემები

1 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს 2018 წლის 25 დეკემბრის № 137 და 2018 წლის 06 ივლისის № 75 განკარგულებებით

2 მიღებულია თავფურცლის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 1436:2018 „ გზის მარკირების მასალები-გზის მარკირების მახასიათებელი გზის მომხმარებლებისა და გამოცდის მეთოდებისთვის”

### 3 პირველად

4 რეგისტრირებულია საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2018 წლის 25 დეკემბერი №268-1.3-014724

აკრძალულია ამ სტანდარტის გადაცემა მესამე პირებისათვის ან/და მისი სხვა ფორმით გავრცელება

English Version

## Road marking materials - Road marking performance for road users and test methods

Produits de marque routier - Performances des marquages appliqués sur la route

Straßenmarkierungsmaterialien - Anforderungen an Markierungen auf Straßen und Messmethoden

This European Standard was approved by CEN on 22 October 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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## European foreword

This document (EN 1436:2018) has been prepared by Technical Committee CEN/TC 226 “Road equipment”, 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 July 2018 and conflicting national standards shall be withdrawn at the latest by July 2018.

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

This document supersedes EN 1436:2007+A1:2008.

The main changes in this revision to EN 1436 are as follows:

- the title is extended with “*and test methods*” in order to stress that test methods are provided;
- in the Scope, the sentence “*Furthermore the standard specifies test methods*” is added in order to stress that test methods are provided;
- in the Introduction, two paragraphs are added at the end to clarify a few issues;
- in the Normative references, EN 13036-4 is inserted, while references to ISO 48 and ISO 4662 are deleted. Additionally, the normative reference to ISO 10526 is replaced by a normative reference to ISO 11664-2;
- in 3.6, the definition of structured road marking is simplified;
- in 3.7, the definition of type I and II road markings is split into two separate definitions in 3.7 and 3.8;
- in 3.9, a definition of chromaticity coordinates  $x,y$  is inserted as 3.9;
- in Table 1, an option for class Q5 is added for white road markings on asphaltic road surfaces;
- in Table 3, an option for class R5 is added for permanent yellow road markings;
- in 4.2.1 *General*, the reference to 3.6 is deleted in view of the simplification of this definition;
- in 4.4 *Colour*, this clause is split into subclause 4.4.1 with existing classes for chromaticity in daylight and a new subclause 4.4.2 with classes for chromaticity of retroreflected light of yellow road markings;
- in 4.5 *Skid resistance*, the reference to 3.6 is deleted in view of the simplification of this definition and precautions for when this test is valid are added;
- in A.3 *Standard measuring condition of measuring equipment*, a new paragraph is inserted at the end regarding permissible side angles;
- in A.4 *Practical applications of measuring equipment*, the words “*For fixed aim instruments*” in the 7<sup>th</sup> paragraph are deleted as all instruments available on the market have fixed aim. Additionally, a paragraph regarding allowances for vehicle mounted equipment is added at the end;
- in B.2 *Spectral match of measuring equipment*, a new paragraph is inserted after the 6<sup>th</sup> paragraph describing an alternative and more simple test of the spectral match for vehicle mounted instruments;
- in B.3 *Standard measuring condition of measuring equipment*, a new paragraph is inserted after the 6<sup>th</sup> paragraph regarding permissible side angles;

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- in B.4 *Practical applications of measuring equipment*, subclauses B.4.1, B.4.2 and B.4.3 are introduced for respectively general considerations, portable instruments and vehicle mounted instruments in order to provide additional information on vehicle mounted instruments. Further, for clarity, B.4.2 and B.4.3 are themselves split into subclauses;
- in C.1, the title is changed to “*Standard measuring condition for the measurement of the luminance factor and the chromaticity co-ordinates x and y in daylight*” in order to make the content clear. Further, the reference to ISO 10526 is replaced by a reference to ISO 11664-2;
- in C.2 *Standard measuring condition for the measurement of the chromaticity coordinates x and y of retroreflected light*, this new clause is inserted in view of the new subclause 4.4.2. The clauses thereafter are renumbered accordingly;
- in C.3 *Measuring equipment* (previously C.2), the words “*of the luminance factor and the chromaticity co-ordinates x, y*” at the end of the 1<sup>st</sup> paragraph are deleted. Additionally, a Note 2 regarding equipment for the measurement of the x, y chromaticity co-ordinates of retroreflected light has been inserted;
- the Annex D (normative) *Measuring method for skid resistance* has been deleted, being essentially replaced by a reference to EN 13036-4 in subclause 4.5.

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

## Introduction

Road markings together with road studs form the means for horizontal signalization.

Road markings include longitudinal markings, arrows, transverse markings, text and symbols on the surface of the highway, etc. Longitudinal road markings serve among else to delineate the roads, to separate opposing traffic streams and to divide the total road area into sub-areas for different road users. Other road markings serve a range of purposes, among else to indicate the use of driving lanes, full stop and give way, to mark pedestrian crossings and to provide information.

Road markings can be provided by the application of paint, thermoplastic materials or reactive materials, pre-formed lines and symbols or by other means.

Most road markings are white or yellow, but in special cases other colours are used.

Road markings are either permanent or temporary. The functional life of temporary road markings is limited by the duration of the road works. For permanent road markings it is best for reasons of safety to have a functional life that is as long as possible, as limited by the gradual deterioration of performance and the level of service to be provided for the road users.

Road markings can be applied with or without the addition of glass beads/anti-skid materials. With glass beads the retroreflection of the marking is achieved when the marking is illuminated by vehicle headlamps. Anti-skid material improves the skid resistance of the marking.

The retroreflection of a marking, in wet or rainy conditions, can also be enhanced by special properties. The properties can be produced by surface texture (as with structured markings), large glass beads or other means. In the case of surface texture, the passage of wheels can produce acoustic or vibration effects.

The value of a parameter for a particular road marking location is dependant of the surface condition of the road marking, which is influenced by the local conditions, time of the year, traffic 'history', weather and other factors. It should be taken into account that the value measured on a particular occasion is not necessarily the average or typical value of that road marking.

This standard cannot be used directly as tender specifications nor test instructions, but needs to be supported by additional papers for such applications. Acceptance criteria in view of measuring uncertainty should be part of such additional papers.

A newly applied road marking may not show its true performance because of excess drop-on materials, an oily water repelling surface or other causes. Measurements of the performance should not take place until the actual performance has been developed, which may take from a couple of days to a couple of weeks depending on the type of road surface, the performance characteristics to be measured and the conditions regarding traffic and weather.

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