

TEEKATTEMÄRGISED. KATTEHELKURID. OSA 1:
ESMASED TOIMIVUSNÕUDED

Road marking materials - Retroreflecting road studs -
Part 1: Initial performance requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1463-1:2022 sisaldab Euroopa standardi EN 1463-1:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 1463-1:2022 consists of the English text of the European standard EN 1463-1:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.12.2021.	Date of Availability of the European standard is 22.12.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 93.080.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autoriõiguse kaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about standards copyright protection, please contact the Estonian Centre for Standardisation and Accreditation: Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Road marking materials - Retroreflecting road studs - Part 1: Initial performance requirements

Produits de marquage routier - Plots
rétro réfléchissants - Partie 1 : Exigences initiales de
performance

Straßenmarkierungsmaterialien - Markierungsknöpfe -
Teil 1: Anforderungen im Neuzustand

This European Standard was approved by CEN on 24 October 2021.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword	3
1 Scope	5
2 Normative references	5
3 Terms, definitions, symbols, units and abbreviated terms	5
4 Characteristics	7
4.1 Night time visibility	7
4.1.1 General explanation to angles	7
4.1.2 Retro-reflectivity	8
4.2 Durability of retro-reflectivity	9
5 Testing, assessment and sampling methods	10
5.1 Night time visibility	10
5.1.1 Retro-reflectivity	10
5.2 Durability of retro-reflectivity	10
6 Assessment and verification of constancy of performance — AVCP	10
6.1 General	10
6.2 Assessment of performance	10
6.2.1 General	10
6.2.2 Test samples, testing and compliance criteria	11
6.3 Verification of constancy of performance	11
6.3.1 Factory production control (FPC)	11
6.3.2 Initial inspection of factory and of FPC	13
6.3.3 Continuous surveillance of FPC	13
Annex A (normative) Test method for the determination of the coefficient of luminous intensity (R)	14
Annex B (normative) Test method for the determination of chromaticity co-ordinates (x,y)	17
Annex ZA (informative) Relationship of this European Standard with Regulation (EU) No. 305/2011	19

European foreword

This document (EN 1463-1:2021) 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 June 2022, and conflicting national standards shall be withdrawn at the latest by September 2023.

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

This document supersedes EN 1463-1:2009.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association.

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

The main changes with respect to the previous edition are listed below:

- To adapt the structure of the standard to the new CEN instructions for candidate harmonized standards for construction products, the terminology and the Annex ZA have been adapted to CEN guidance and template.
- All content that refers to temporary products and to none of the mandated characteristics has been eliminated (deletion of content related to Temporary Road Studs and in use characteristics “Dimensions”).
- Clause 6 “Assessment and verification of constancy of performance — AVCP” has been added.
- Former Clause 4 “type-of road stud” has been moved to Clause 3 “Terms, definitions, symbols, units and abbreviated terms” under new subclause 3.10.
- Former Clause 5 “Performance Requirements” can be found in this standard under Clause 4 “Characteristics”.
- Subclause 4.1.1 “General explanation to angles” has been added to Clause 4 “Product characteristics” (former Clause 5 “Performance Requirements”) to avoid any misinterpretation.
- Former Tables 4 and 5, in former subclause 5.3.1.1, have been merged as specified in that subclause (see new Table 3 in 4.1.2.1) in order to make the interpretation of the threshold values corresponding to that characteristic easier, and subsequently avoid potential mistakes. Therefore, threshold levels specified for each type (1, 2 and 3) of road studs and colour specified in new Table 3 correspond to those given in the previous version of EN 1463-1.
- Former subclause 5.3.1 “Photometric requirements” can be found in this standard under 4.1.2.1 “Coefficient of luminous intensity (R)”.
- Former subclause 5.3.2 “Colorimetric requirements” can be found in this standard under 4.1.2.2 Chromaticity co-ordinates (x,y).

- Subclause 4.2 “Durability of retro-reflectivity” has been added to give a clear link to EN 1463-2:2021. Notice that according to the answer to Mandate M/111 (CEN reference doc N 1318 dated June 2013) accepted by the European Commission, only Durability of retro-reflectivity expressed as coefficient of luminous intensity (R) is considered relevant.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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

1 Scope

This document specifies the product characteristics, laboratory test methods, the way of expressing results and the relevant procedures for assessment and verification of the constancy of performance for retroreflecting road studs, non depressible and depressible by design (designated as Type A and B, respectively) and which reflectors are made of glass, plastic or plastic with abrasion resistance layer (designated as Type 1, 2 and 3, respectively), to be used for permanent road markings, and delineation purposes, in circulation areas.

This document covers retroreflecting road studs (types - 1, 2, 3 - A, B) of white, yellow, amber, red and green colour of their reflectors.

This document does not cover:

- non-retroreflective road studs;
- temporary retroreflective road studs.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

EN 1463-2:2021, *Road marking materials - Retroreflecting road studs - Part 2: Road test performance specifications*

ISO/CIE 11664-1:2019, *Colorimetry - Part 1: CIE standard colorimetric observers*

ISO 11664-2:2007, *Colorimetry - Part 2: CIE standard illuminants*

CIE 054.2:2001, *Retroreflection: Definition and measurement*

CIE S 017/E:2020, *ILV: International Lighting Vocabulary, 2nd Edition*

3 Terms, definitions, symbols, units and abbreviated terms

For the purposes of this document, the following terms and definitions apply.

3.1

retroreflecting road stud

horizontal guiding device that reflects incident light by means of *retroreflectors* (see 3.2) in order to warn, guide or inform road users

Note 1 to entry: Retroreflecting road stud called “road stud” in this document.

Note 2 to entry: Retroreflecting road stud may be constructed in either one or more integral parts and may be bonded to, anchored within or embedded within the road surface. The body is typically manufactured with plastic polymers, although solid glass is also used. The retroreflecting portion may be unidirectional or bidirectional, depressible or non depressible.

3.2

retroreflector

device which reverses the direction of visible light striking it and returns it along a path substantially parallel to its original path

Note 1 to entry: It may be made of glass (type 1), plastic (type 2) or plastic with an abrasion resistant surface (type 3). It may have a reflective coating at the back.