

STN P	Zariadenia zimnej údržby Informačné systémy cestnej meteorológie Časť 4: Skúšobné metódy pre stacionárne zariadenia	STN P CEN/TS 15518-4
		30 3361

Winter maintenance equipment - Road weather information systems - Part 4: Test methods for stationary equipment

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/24

Táto predbežná slovenská technická norma je určená na overenie. Prípadné pripomienky pošlite do októbra 2025 Úradu pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky.

Obsahuje: CEN/TS 15518-4:2023

Oznámením tejto normy sa ruší
STN P CEN/TS 15518-4 (30 3361) z mája 2014

138324



TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN/TS 15518-4

November 2023

ICS 07.060; 13.030.40; 35.240.99

Supersedes CEN/TS 15518-4:2013

English Version

**Winter maintenance equipment - Road weather
information systems - Part 4: Test methods for stationary
equipment**

Matériel de viabilité hivernale - Systèmes
d'information météorologique routière - Partie 4 :
Méthodes d'essai pour les matériels fixes

Winterdienstausstattung - Straßenzustands- und
Wetterinformationssysteme - Teil 4: Prüfverfahren bei
stationären Einrichtungen

This Technical Specification (CEN/TS) was approved by CEN on 15 October 2023 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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, Türkiye 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

CEN/TS 15518-4:2023 (E)**Contents**

	Page
European foreword	5
Introduction	7
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions	8
4 System and test setup definition	8
 4.1 Introduction.....	8
 4.1.1 General.....	8
 4.1.2 General rules for issue of certifications according to this standard	9
 4.1.3 General requirements for estimation of uncertainties of test procedures and tolerances.	9
 4.2 Pavement surface temperature test for embedded sensors.....	10
 4.2.1 General.....	10
 4.2.2 Stabilized temperature test	10
 4.2.3 Transient temperature test.....	11
 4.3 Temperature test for embedded sensors for the road body temperature	13
 4.4 Water film thickness test for embedded sensors.....	13
 4.4.1 General.....	13
 4.4.2 Test method overview.....	13
 4.4.3 Test equipment.....	14
 4.4.4 Test procedure.....	14
 4.4.5 Result analysis	15
 4.5 Road surface condition for embedded sensors.....	16
 4.5.1 General.....	16
 4.5.2 Test method	16
 4.5.3 Test equipment.....	17
 4.5.4 Test procedure.....	17
 4.5.5 Result analysis	17
 4.6 Freezing temperature for embedded sensors.....	17
 4.6.1 General.....	17
 4.6.2 Test method	18
 4.6.3 Test equipment.....	18
 4.6.4 Test procedure.....	20
 4.6.5 Result analysis	21
 4.7 Amount of de-icing agent (g/m²) for embedded sensors	21
 4.7.1 General.....	21
 4.7.2 Test method	21
 4.7.3 Test equipment.....	21
 4.7.4 Test procedure.....	22
 4.7.5 Result analysis	23
 4.8 Surface Temperature test for remote sensors	23
 4.8.1 General.....	23
 4.8.2 Test method	23
 4.8.3 Test equipment.....	23
 4.8.4 Test procedure.....	23

4.8.5	Result analysis	23
4.9	Water film thickness and surface condition test for remote sensors.....	24
4.9.1	General information	24
4.9.2	Test method overview	24
4.9.3	Test equipment.....	24
4.9.4	Test procedure	25
4.9.5	Result analysis	26
4.10	Frost detection test for remote sensors	27
4.10.1	Test method overview	27
4.10.2	Test equipment.....	27
4.10.3	Test procedure	28
4.10.4	Result analysis	28
4.11	Ice film thickness and road condition test for remote sensors.....	28
4.11.1	Test method overview	28
4.11.2	Test equipment.....	28
4.11.3	Test procedure	29
4.11.4	Result analysis	30
4.12	Air temperature test for atmospheric sensors	31
4.12.1	Method	31
4.12.2	Assessment criteria	31
4.13	Relative humidity test for atmospheric sensors	31
4.13.1	Method	31
4.13.2	Assessment criteria	32
4.14	Dew point temperature test for atmospheric sensors	32
4.15	Precipitation detection time test for atmospheric sensors.....	32
4.15.1	General	32
4.15.2	Test method	32
4.15.3	Result analyses	32
4.16	Precipitation type test for atmospheric sensors.....	32
4.16.1	General	32
4.16.2	Test equipment.....	32
4.16.3	Measuring arrangement.....	33
4.16.4	Measurement value acquisition	33
4.16.5	Assessment procedure.....	33
4.16.6	Result analysis	33
4.17	Precipitation intensity test for atmospheric sensors	34
4.17.1	General	34
4.17.2	Test method	34
4.17.3	Result analysis	38
4.18	Amount of precipitation test for atmospheric sensors	38
4.18.1	General information	38
4.18.2	Test method	38
4.19	Wind speed test for atmospheric sensors	40
4.19.1	Method	40
4.19.2	Assessment criteria	40
4.20	Gust of wind test for atmospheric sensors	40
4.21	Wind direction test for atmospheric sensors	40
4.21.1	Method	40
4.21.2	Assessment criteria	40
4.22	Visibility test for atmospheric sensors	40
4.22.1	Test method	40
4.22.2	Test equipment	40
4.22.3	Test procedure	41

CEN/TS 15518-4:2023 (E)

4.22.4 Result analysis	41
Bibliography	42

European foreword

This document (CEN/TS 15518-4:2023) has been prepared by Technical Committee CEN/TC 337 "Road operation equipment and products", the secretariat of which is held by AFNOR.

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 CEN/TS 15518-4:2013.

CEN/TS 15518-4:2023 includes the following significant technical changes with respect to CEN/TS 15518-4:2013:

- revised general specifications;
- revised or added test specifications for embedded sensors:
 - pavement temperature;
 - road body temperature;
 - road surface condition;
 - water film thickness;
 - freezing temperature;
 - amount of de-icing agent;
- added test specifications for remote sensors:
 - surface temperature;
 - water film thickness and surface condition;
 - frost detection;
 - ice film thickness and road condition;
- revised test specifications for atmospheric sensors:
 - air temperature;
 - relative humidity;
 - dew point temperature;
 - wind speed;
 - wind direction;
 - precipitation intensity;
 - visibility;

CEN/TS 15518-4:2023 (E)

- deleted test specifications for atmospheric sensors:
 - snow depth.

EN 15518, *Winter maintenance equipment — Road weather information systems*, is currently composed of the following parts:

- *Part 1: Global definitions and components;*
- *Part 2: Road weather — Recommended observation and forecast;*
- *Part 3: Requirements on measured values of stationary equipment;*
- *Part 4 (CEN/TS): Test methods for stationary equipment.*

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 announce this Technical Specification: 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, Türkiye and the United Kingdom.

Introduction

Road Weather Information Systems (RWIS) are complex structures used for road maintenance decision support, which feature as a rule the following components: meteorological sensors and instruments, transmission technology, computer systems for processing, representation and storing of information, road weather forecasts, alarms, in relation to traffic control and traffic information systems and more.

This European specification lays down the test procedures to verify the requirements on stationary equipment specified in EN 15518-3.

The aim is to allow for objective and reproducible measurement analysis and evaluation.

CEN/TS 15518-4:2023 (E)**1 Scope**

This document specifies the test methods, the experimental set-up and result analysis for the laboratory qualification of stationary equipment within a RWIS.

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. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 15518-3, *Winter maintenance equipment — Road weather information systems — Part 3: Requirements on measured values of stationary equipment*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN