DRAFT FOR DEVELOPMENT

DD CEN/TS 15901-6:2009

Road and airfield surface characteristics

Part 6: Procedure for determining the skid resistance of a pavement surface by measurement of the sideway force coefficient (SFCS): SCRIM®

ICS 93.080.20

British Standards

National foreword

This Draft for Development is the UK implementation of CEN/TS 15901-6:2009.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature. It should be applied on this provisional basis, so that information and experience of its practical application can be obtained.

Comments arising from the use of this Draft for Development are requested so that UK experience can be reported to the international organization responsible for its conversion to an international standard. A review of this publication will be initiated not later than 3 years after its publication by the international organization so that a decision can be taken on its status. Notification of the start of the review period will be made in an announcement in the appropriate issue of *Update Standards*.

According to the replies received by the end of the review period, the responsible BSI Committee will decide whether to support the conversion into an international Standard, to extend the life of the Technical Specification or to withdraw it. Comments should be sent to the Secretary of the responsible BSI Technical Committee at British Standards House, 389 Chiswick High Road, London W4 4AL.

The UK participation in its preparation was entrusted to Technical Committee B/510/5, Surface characteristics.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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Road and airfield surface characteristics - Part 6: Procedure for determining the skid resistance of a pavement surface by measurement of the sideway force coefficient (SFCS): SCRIM(r)

Caractéristiques de surface des routes et aéroports - Partie 6: Mode opératoire de détermination de l'adhérence d'un revêtement de chaussée en procédant au mesurage du coefficient de frottement transversal (CFTS): le SCRIM

Oberflächeneigenschaften von Straßen und Flugplätzen - Teil 6: Verfahren zur Bestimmung der Griffigkeit von Fahrbahndecken durch Messung des Seitenreibungsbeiwerts (SFCS): das SCRIM-Griffigkeitsmessgerät

This Technical Specification (CEN/TS) was approved by CEN on 27 June 2009 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.

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Foreword

This document (CEN/TS 15901-6:2009) has been prepared by Technical Committee CEN/TC 227 "Road materials", the secretariat of which is held by DIN.

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.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This Technical Specification describes a method for determining the wet-road skid resistance of a surface by measurement of the sideway force coefficient SFCS.

The method provides a measure of the wet-road skid resistance properties of a bound surface by measurement of sideway-force coefficient at a controlled speed. The method has been developed for use on roads but is also applicable to other paved areas such as airport runways.

This Technical Specification covers the operation of the Sideway-force Coefficient Routine Investigation Machine SCRIM®. This is a device developed by W.D.M. Limited, Bristol, England from original research by the Transport Research Laboratory in the United Kingdom. It uses the side force principle to make routine measurements of skid resistance continuously on long lengths of road. SCRIM test equipment has been built onto a number of different vehicle chassis and functions independently of vehicle choice.

A machine conforming to the general characteristics of the SCRIM and the specific provisions of this Technical Specification may also be used for the tests.

The skid resistance of a pavement is determined by friction measurements and measurements of pavement texture. Where measurement of pavement texture is required the standard for this measurement and the device is described in EN ISO 13473-1.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 48, *Rubber, vulcanized or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 4662, *Rubber – Determination of rebound resilience of vulcanizates*

3 Recommended uses

This method provides a means for the evaluation of the skid resistance of a road surfacing. It is suitable for use for the following situations:

- testing new surfacing materials when installed in a road trial for Type Approval purposes;
- testing new surfacing materials for contractual compliance purposes;
- routine determination of the in-service skid resistance of the surface of a road or airport runway;
- research.

4 Terms and definitions

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

4.1
friction
resistance to relative motion between two bodies in contact

NOTE The frictional force is the force which acts tangentially in the contact area.

4.2
skid resistance
characterisation of the friction of a road surface when measured in accordance with a standardised method

4.3
wet road skid resistance
property of a trafficked surface that limits relative movement between the surface and the part of a vehicle tyre in contact with the surface, when lubricated with a film of water

NOTE Factors that contribute to skid resistance include the tyre pressure, contact area, tread pattern, and rubber composition; the alignment, texture, surface contamination, and characteristics of the road surface; the vehicle speed; and the weather conditions.

The skid resistance of a road surface in Europe varies seasonally. Generally, wet skid resistance is higher in winter as a result of the effects of wet detritus and the effects of frost and wear by tyres on microtexture and macrotexture. Wet skid resistance is lower in summer as a result of dry polishing by tyres in the presence of fine detritus.

The change in skid resistance of a surface in service is affected by the volume of traffic and the composition of the traffic, i.e. cars, buses, commercial vehicles of different sizes, as the tyres of these vehicles polish and/or wear away the surfacing material in different ways. The geometry of the road will affect the change in skid resistance. Generally, tyres polish less on straight roads than on bends.

Where the surface contains aggregate with a coating of binder, e.g. bitumen, resin or Portland cement, the skid resistance will change as the coating is worn away by tyres.

4.4
bound surface
top layer or surface course of a road with the aggregates secured permanently in place

NOTE Aggregates are commonly secured in place by bitumen or Portland cement.

4.5
operating speed
speed at which the device traverses the test surface

4.6
contact area
overall area of the road surface instantaneously in contact with a tyre

NOTE This term describes the overall area generally covered by the tyre. Due to the effects of surface texture or any tyre tread pattern, not all of the tyre or road surface in the contact area can be in contact at any instant.

4.7
slip speed
relative speed between the test tyre and the travelled surface in the contact area

4.8
slip ratio
slip speed divided by the operating speed

NOTE For devices meeting the requirements of this Technical Specification the slip ratio is fixed by the angle of the test wheel.

4.9
horizontal force
side force
force acting horizontally perpendicular to a freely rotating, angled test wheel

4.10
sideway force coefficient
SFC
ratio between the vertical force (load) and horizontal force (sideway force) in controlled conditions, which is normally a decimal number quoted to two significant figures

NOTE SFC varies depending on the wheel angle of the device and the operational speed.

4.11
SFCS
sideway-force coefficient measured with a device using a narrow wheel in accordance with this Technical Specification

4.12
SCRIM®
device developed by W.D.M. Limited, Bristol, England from original research by Transport in the United Kingdom that uses the side force principle to make routine measurements of skid resistance continuously, all devices being manufactured under license from TRL Ltd UK

4.13
sampling length
distance over which responses of the sensors are sampled to determine a single measurement of the recorded variables

NOTE 1 The sampling length depends upon the detailed operation of device and its recording system; a number of samples may be combined to determine a measurement for a subsection.

NOTE 2 This should not be confused with horizontal resolution which is the shortest distance over which a change in the measured parameter can be detected.

4.14
subsection
defined length of surface for which one set of the measured variables is reported by the device

NOTE Different devices may use different subsections depending on the context of the measurements, such as 5 m, 10 m or 20 m.

4.15
test section
length of road between defined points (e.g. location references, specific features, or measured distances) comprising a number of subsections over which a continuous sequence of measurements is made

4.16
water delivery system
system for depositing a given amount of water in front of the test tyre so that it then passes between the tyre and the surface being measured

4.17
water flow rate
rate at which water is deposited on the surface to be measured in front of the test tyre

NOTE Water flow rate is expressed in litres per second (l/s).

4.18
theoretical water film thickness
theoretical thickness of a water film deposited on the surface in front of the measuring tyre, assuming the surface has zero texture depth

4.19
wheelpath
part of the pavement surface where the majority of vehicle wheel passes are concentrated

NOTE The wheelpath is not a fixed location on a pavement surface. On a worn pavement, the wheelpath is usually easily identified visually. On a newly laid surface, the position of the wheelpath needs to be estimated by experienced operators.

For special circumstances such as acceptance tests, a particular path may be defined, for example (700 ± 150) mm from the edge of the running lane of a road.

4.20
nearside wheelpath
wheelpath that is closest to the edge of the road in the normal direction of travel

NOTE For countries that normally drive on the right, this is the right-hand side and for countries that normally drive on the left, this is the left-hand side.

5 Safety

Safety measures shall be in place to maintain safe working practice in accordance with current regulations, and to ensure the safety of other road users, including measures to control traffic as necessary.

NOTE The wetting of surfaces can have an effect on other users of the site and every effort should be made to ensure that they do not have to make any sudden changes in speed or direction.

When measuring skid resistance on trafficked roads the device may operate at speeds different to normal road speeds and as a result can create a hazard to other road users. The test speed specified when calling for tests in accordance with this standard should take this into account.

Testing should not be carried out if there is a risk of water freezing on the pavement.

Most devices are fitted with a test wheel on one side only, positioned for testing in the nearside wheelpath of their home country. Such machines cannot normally be used to test in the other wheelpath without straddling the edge of the lane and should not be used so unless there is sufficient room to do so safely and appropriate safety measures regarding other traffic are taken. Some machines are fitted with a test wheel on both sides.

6 Essential characteristics

6.1 Principle of measurements

Machines meeting this Technical Specification operate on the sideways-force principle using a special narrow test wheel, similar to a motorcycle wheel, set an angle to the direction of travel which generates a slipping condition as it is towed along the wetted pavement surface. The slipping force and load on the wheel are measured. A typical device is illustrated in Figure 1.

6.2 Operating Principle

A controlled slipping condition is achieved by mounting a freely rotating test wheel with its vertical plane at an angle to the longitudinal plane of the test vehicle. When the vehicle is in motion, the test wheel slides or slips in the forward direction.

A freely rotating wheel fitted with a special pneumatic, smooth, rubber tyre, mounted mid-machine in line with the nearside wheelpath and angled at 20° to the direction of travel of the vehicle, is applied to the road surface under a known vertical load.

A controlled flow of water wets the road surface immediately in front of the test wheel, so that when the vehicle moves forward, the test wheel slides in the forward direction along the surface. The force generated by the resistance to sliding is related to the wet road skid resistance of the surface and measurement of this sideways component gives the SFCS.

SFCS values depend upon the type of equipment and the way in which it is used. The SFCS is affected by the speed of the test vehicle. Testing should be carried out at a specified speed.

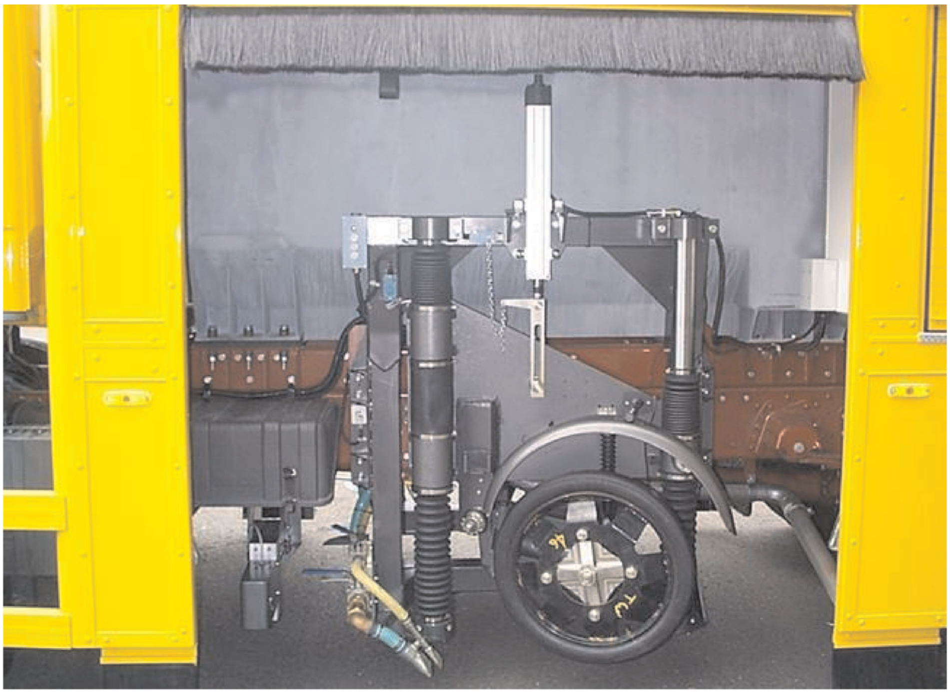

Figure 1 — A typical SFCS wheel assembly for a left hand drive device with the wheel in its raised position

7 Key Characteristics

7.1 General

The minimum requirements to ensure a good repeatability and reproducibility of the devices results are listed below.

7.2 Test equipment

The test equipment shall include the following features:

— test wheel assembly;

— water supply and flow control mechanism;

— electronic recorder and measurement control system.

7.3 Test wheel assembly

Mount the test wheel assembly on a frame within the wheel-base of the vehicle. Attach two vertical shafts to the frame and locate the test wheel assembly in the appropriate wheelpath. The assembly shall be free to move vertically when the test wheel is in contact with the surface (to minimize the effects of vehicle chassis movements). The test wheel assembly shall comprise a back plate for location on the vertical shafts, a swinging arm, hub, test wheel and tyre, electrical load-cell to measure the horizontal load and a single damper/spring suspension unit.

NOTE 1 An electrical load-cell to measure the dynamic vertical load can improve the accuracy of measurement.

The mass of the test wheel assembly shall be (200 ± 1) kg. Fix the vertical plane of the test wheel at (20,0 ± 1,0)° to the line of the chassis.

NOTE 2 This angle is sometimes known as the “slip angle”.

A mechanism shall be provided for raising and lowering the test wheel assembly to and from the ground.

7.4 Test tyre

The test tyre shall be a tubed, pneumatic, natural rubber, 76/508 mm (3/20 inch), with no tread (smooth).

The tyre resilience shall be in the range 40 % to 49 % as measured by the Lupke test in accordance with ISO 4662 at 20 °C. The Shore hardness (IRHD) of the rubber shall be (64 ± 5), in accordance with ISO 48.

Inflate the tyre to a pressure of (350 ± 20) kPa when measured at 20 °C.

NOTE 1 The tyre pressure should be equivalent to that at the specified temperature. In practice, other pressure values will apply at other temperatures.

Condition a new test tyre, by testing for at least 2 km before any results are recorded.

NOTE 2 A longer length than this minimum can be required in certain circumstances.

Discard the test tyre when it loses 6 mm in diameter (3,0 mm tyre wear), or if otherwise damaged.

Date stamp all tyres and mark each one indelibly with a unique reference number. Mark the tyre with an indicator that will enable wear of 3 mm to be identified. Do not use a tyre which has worn beyond the minimum tread thickness. Do not use a tyre that is more than two years old. Tyres should be stored in a cool dry environment away from direct sunlight, in such a way that they are not damaged or distorted.

NOTE 3 This can be achieved by storing vertically.

7.5 Pavement wetting system, water film thickness

The theoretical water film thickness for the SCRIM test shall be 0,5 mm at the test speed. The flow rate of the water shall be capable of being adjusted to achieve this value at various test speeds.

NOTE The water film thickness is called “theoretical” because it means the thickness on a perfectly dense, smooth and horizontal pavement. The actual water film thickness depends on the pavement on which it is applied. For example on porous pavements the water depth is depending on the porosity of the pavement.

The water used for testing shall be reasonably clean, free of suspended solids, oil and salt and have no added chemicals such as wetting agents or detergents.

7.6 Measurement control system and recorder

The measurement control system shall enable the operator to raise and lower the test wheel and ensure that the water supply valve is opened or closed as required. It shall ensure that water flow commences before the wheel touches the road surface and ceases after the wheel is raised.

An electronic recorder shall be provided, able to measure, as a minimum, the horizontal load, speed and distance travelled. The vertical load may either be measured dynamically or a constant value equal to the static vertical load may be used.

The data recorder system shall be able to measure and record data in accordance with the requirements of Clause 9 of this specification.

7.7 Parameters recorded

For each test section the following are measured:

— the average SFCS for each subsection;

  In order to determine the SFCS the equipment shall measure the average horizontal force, H, and the average vertical load, V, for a maximum sampling length of 100 mm.

  The SFC for a defined test length is calculated using the formula $SFCS = H/V$. If the machine cannot measure V dynamically, the average static load of 200 kg may be used. The resulting SFCS values shall be aggregated to calculate the average for the subsection.

— the average test speed for each subsection;

  Speed shall be recorded to an accuracy of ± 1 km/h and recorded in kilometres per hour (km/h) to the nearest 1 km/h.

— the length of the subsection;

  The subsection length shall be defined before testing is carried out. Typically 1 m, 5 m, 10 m or 20 m may be used.

NOTE The temperature of the water in the tank and/or surface temperature may be measured. These temperatures may be used to adjust the measured SFCS.

8 Test procedure

8.1 Standard test conditions

The standard test conditions of the method are (see Table 1):

Table 1 — Standard test conditions

Air temperature	> 4 °C
Pavement temperature	> 5 °C (testing season typically April till November) < 50 °C
Pavement status	no pollution
Test wheel	smooth tyre large diameter
Method	constant slip ratio from slip angle
Static wheel load	1 962 N
Operating speed	normally 50 km/h
Theoretical water film thickness	0,5 mm
Length for the mean value	optional, usually 20 m
Wheelpath	normally nearside wheelpath or as required

8.2 Prior to testing

Prior to testing check the measurement tyre for pressure and wear.

Inspect the water flow system for:

— position of nozzle;

— appropriate flow rate on the manual water control valve if fitted;

— obstruction or damage to the system.

As appropriate, for the particular recorder, set the recording system for the required subsection length and set the water flow rate.

8.3 Testing

Bring the tyre to a stable operating temperature by running with the wetting unit active for at least 0,5 km prior to a test section.

Running the tyre to stable operating temperature is not required if less than 15 min elapse after completion of a previous test section.

Adjust the vehicle speed to the speed specified for the test section and start the recorder.

NOTE 1 The test speed will be defined by the user of the data depending upon his specific requirements. The test speed is not necessarily the same as the speed used for the purposes of analysing the results for which the values may need to be adjusted.

Continue with the test, maintaining the specified test speed and entering reference codes at the appropriate locations.

NOTE 2 Usually the path taken by the test wheel should follow the nearside wheelpath or the path taken by normal vehicular flow (in particular the path taken by heavy goods vehicles). During the test the operator should monitor speed, test line and recorded values. The operator may also insert codes to indicate a deviation from the test line or other conditions that could affect the validity of the readings.

On completion of the test section, after the final reference point, stop the recorder and raise the test wheel.

9 Data recording

During a test, the recorder shall be able to display and make a continuous record of the required parameters defined in 7.6 for successive subsections along the road.

The recorder shall be able to record automatic or manual input reference points.

The operator shall be able to insert codes to indicate a deviation from the intended test line.

10 Calibration

10.1 General

The calibration of the machine shall be carried out at the frequency given in Table 2.

Table 2 — Minimum Frequency of calibration

Operation	Minimum Frequency
Static calibration of horizontal load measurement	24 h before test
Vertical load recording static check	at same time as horizontal load calibration
Static calibration of vertical load measurement (if fitted)	monthly
Dynamic calibration check	weekly (during periods of operation)
Distance	three months or when the vehicle tyres are replaced
Water flow rate	monthly
Static load check	annually
Full manufacturer's service and calibration	annually
Correlation exercise with other devices where described in national requirements	annually

10.2 Static calibration of horizontal load measurement

Static calibration of the horizontal load measurement shall be carried out by applying a known horizontal load along the line of the test wheel axle. The load should be applied progressively at intervals from 0 kN to 2 kN in 200 N steps.

Before carrying out a static calibration, check that the test wheel assembly moves freely by lowering the tyre to the road.

NOTE This procedure requires purpose-made equipment. Suitable equipment that complies with this principle is normally supplied by the device manufacturer. The calibration equipment and electronic recorder should be operated in accordance with the manufacturer's instructions for horizontal load calibrations.

Static calibration shall conform to Table 3.

Table 3 — Static calibration

Horizontal load N	Recorder output SFCS × 100
0	− 2 to 2
200	8 to 12
400	18 to 22
600	29 to 31
800	39 to 41
1 000	49 to 51
1 200	59 to 61
1 400	69 to 71
1 600	78 to 82
1 800	88 to 92
2 000	98 to 102

10.3 Static calibration of vertical load measurement

If the machine is fitted with a dynamic vertical load measurement device, a full static calibration shall be carried out using the following principle at least monthly when the device is in regular use.

Ideally, the vertical load should be calibrated whenever the horizontal calibration is carried out. However, it is not always practical to carry out a full vertical load static calibration, particularly when the vehicle is not at its normal base. A vertical load recording static check (see 10.3) shall be used as necessary between full calibration procedures.

For a full static vertical load measurement calibration, position the test vehicle on a level surface such that the test wheel can be lowered, when required, onto a weigh pad that is calibrated, readable and accurate to 0,5 kg. The weigh pad should be positioned such that the wheel is at the level that it would normally be when in contact with a road. Lower the test wheel onto the weigh pad and apply a known vertical load from 0 kg to 200 kg in increasing steps of 20 kg, as indicated by the weigh pad display.

NOTE This procedure requires purpose-made equipment. Suitable equipment that complies with this principle is normally supplied by the device manufacturer. The calibration equipment and electronic recorder should be operated in accordance with the manufacturer's instructions for vertical load calibrations.

10.4 Vertical load recording static check

A static vertical load recording check shall be made whenever a horizontal load calibration is carried out unless a full static vertical load calibration (see 10.3) is to be made at that time.

Park the vehicle on a generally level surface. Lower the test wheel to its normal operating position. Check the vertical load indicated by the vertical load sensor. The indicated static vertical load shall be (200 ± 8) kg.

Follow the manufacturer's instructions for operating the recorder to carry out this check

NOTE The static vertical load calibration check does not directly compare the actual load applied with an independent reference value at the time of the test. It verifies that the static vertical load indicated by the sensor is within an acceptable range based upon the last time that the system was fully calibrated. As such it confirms that the load sensor is functioning correctly and that no mechanical fault has developed to significantly affect the static loading.

If the indicated static vertical load is outside the permitted range, do not carry out tests with SCRIM until a full vertical load calibration has been carried out and any necessary adjustments have been made.

10.5 Vertical load static check

A static vertical load check shall be made at least annually.

Position the test vehicle on a level surface such that the test wheel can be lowered, when required, on to a weigh pad that is calibrated, readable and accurate to 0,5 kg. The weigh pad should be positioned such that the wheel is at the level that it would normally be when in contact with a road. Lower the test wheel onto the weigh pad. The indicated load should be consistent with the requirements the wheel assembly mass given in 7.3.

10.6 Dynamic calibration check

10.6.1 General

Carry out a dynamic calibration check, in accordance with the procedure below, at least once per week during periods of operation and after repairs/servicing to the measuring equipment.

NOTE 1 A dynamic calibration check should also be carried out if there is any reason to suspect the validity of the test results.

NOTE 2 SFCS machines should be checked at least annually in a correlation exercise with other similar machines where described in National requirements.

10.6.2 General

The purpose of the dynamic calibration check is to test the SCRIM equipment under dynamic conditions to ensure consistency of results.

Select a stretch of pavement where a convenient check can be carried out to establish consistency over time.

NOTE 1 The following should be considered when selecting a site for dynamic calibration checks.

— The check site should have separate sections to check the device at a low (but safe) medium, and high level of skidding resistance. Such a site can be difficult to locate and separate sites can be required for the different levels of skidding resistance.

— Sections should be at least 100 m long, have a generally uniform skidding resistance along the whole length and should already have reached the equilibrium value. The horizontal alignment of the section should not be curved with a radius less than 300 m.

— The vertical alignment should not have a gradient greater than 1/20.

— The road profile should be even, with no rutting, potholes, or patching, and no areas where water can stand during rainfall. The site should be structurally sound.

— Preferably the traffic loading should not fluctuate unduly throughout the testing season.

Carry out dynamic calibration checks at least once per week.

NOTE 2 To carry out dynamic calibration checks the site should be close to where the machine is based. If the machine operates away from its base for more than a week, a site close to the area where it is working should be used for daily comparisons, and the machine should be run on the base site at the earliest opportunity.

10.6.3 Operational procedures for dynamic comparison checks

Carry out SCRIM testing in accordance with Clause 8, at a defined test speed and a defined subsection length.

NOTE 1 The test speed and subsection length should be defined in national regulations.

Calculate the average SFCS for each section on completion of the test runs. The average value for each section should not differ from the previous reading on the same section by more than 0,05.

NOTE 2 Variations between comparisons as a result of seasonal variation should be taken into account. For example, large variations attributable to the site, such as heavy rain following a long dry spell, can occur.

If problems with dynamic comparison runs are encountered, remedial action should be taken and if necessary the manufacturer consulted.

10.7 Distance calibration

Carry out a distance calibration as described below at intervals not exceeding three months, or if the vehicle rear tyres are changed, or if a malfunction is suspected.

Ensure vehicle tyre pressures are correct according to the vehicle manufacturer's instructions.

Select a straight level stretch of road of known length at least 400 m.

Start the recorder. Drive the SCRIM device along the length and record the distance at the start and end of the test section. The result shall be within ± 1,0 % of the known length.

11 Precision

The repeatability r is the maximum difference expected between two measurements made by the same machine, with the same tyre, using the same crew on the same section of road in a short space of time, with a probability of 95 %.

The reproducibility R is the maximum difference expected between two measurements made by different machines with different tyres using different crews on the same section of road in a short space of time, with a probability of 95 %.

Trials on different surfaces during the 2009 UK SCRIM correlation trial showed that at 50 km/h the repeatability of the SFCS was r = 0,03 and the reproducibility was R = 0,06.

12 Test Report

A daily report shall be produced including the following information:

a) name of the organization;

b) names of device driver and operator;

c) machine reference;

d) date of test;

e) weather conditions;

f) test length description;

g) start time;

h) target speed;

i) tyre reference;

j) distance tested (to nearest 5 km);

k) average SFCS for each sub-section;

NOTE Conversion of measurements of distance, vertical load and horizontal load into speed and SFCS readings is carried out automatically by the recording system. SFCS testing produces large quantities of data that require further analysis, including verification of reference points, and this may provide average values for selected sections. Analysis packages are available that apply any necessary corrections and calculate SFCS values for the test section. These packages are beyond the scope of this Technical Specification.

l) comments.

Recorded data shall be kept in an appropriate medium for subsequent processing.

Bibliography

[1] EN ISO 13473-1, *Characterization of pavement texture by use of surface profiles – Part 1: Determination of Mean Profile Depth (ISO 13473-1:1997)*

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