

Methods of

Measuring irregularities on surfaces of roads, footways and other paved areas using straightedges and wedges

Committees responsible for this Draft for Development

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British Aggregate Construction Materials Industries
British Civil Engineering Test Equipment Manufacturers' Association
County Surveyors' Society
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Department of Transport (Highways Agency)
Department of Transport (Transport Research Laboratory)
Institute of Asphalt Technology
Institution of Highways and Transportation
Institution of Civil Engineers
Institute of Petroleum
Mastic Asphalt Producers' Association
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Foreword

This Draft for Development has been prepared by Technical Committee B/510. Users are requested to provide feedback on the methods and apparatus specified. Also, information on alternative apparatus and procedures may be submitted as well as data on precision.

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 may be obtained.

A review of this Draft for Development will be carried out not later than 2 years after its publication. Notification of the start of the review period, with a request for the submission of comments from users of this Draft for Development, will be made in an announcement in the appropriate issue of *BSI News*.

According to the replies received, the responsible BSI Committee will judge whether the Draft for Development can be converted into a British Standard or what other action should be taken.

Observations which it is felt should receive attention before the official call for comments will be welcomed. These should be sent to the Secretary of BSI Technical Committee B/510 at BSI, 389 Chiswick High Road, London W4 4AL.

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Draft for Development describes procedures and apparatus for measuring irregularities in the surface of new roads, airfields, other trafficked surfaces, footways and trench reinstatements.

2 Informative references

This Draft for Development refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this Draft for Development are listed on the inside back cover, but reference should be made to the latest editions.

3 Definitions

3.1 irregularity

maximum variance of a surface, from the measurement edge of the straightedge, between two contact points of the straightedge with the surface, when placed perpendicular to it

3.2 detritus

loose surface matter

3.3 rip

run of material laid by a single pass of a machine paver

4 Apparatus

NOTE All equipment should be calibrated in accordance with Annex B.

4.1 Straightedge (types 1, 2 and 3), shall be between 1 m and 4 m (in whole or half metres) long. It shall be of rigid construction such that its measurement edge shall deviate from a true plane by not more than ± 0.2 mm at any point in its operating position. The straightedge shall deviate from straight by not more than 1 mm/m. The horizontal width of the measurement edge shall be not less than 3 mm. The measurement edge shall be easily recognizable.

(See Figure 1, Figure 2 and Figure 3.)

4.2 Straightedge (type 4), shall be 3 m long ± 1 mm and of rigid construction such that when suspended at the end points its measurement edge shall deviate from a true plane by not more than ± 0.5 mm at any point. The straightedge shall also be straight along its length and shall deviate from straight by not more than 1.5 mm. The horizontal width of the measurement edge shall be $25 \text{ mm} \pm 1$ mm. The measurement edge of the straightedge shall be identifiable. (See Figure 4.)

4.3 Calibrated wedge A, shall be not less than 300 mm in length and not less than 25 mm in width. It shall be permanently marked on the slope plane in increments of 1 mm and its true height shall be accurate at each marked increment to ± 0.2 mm. The wedge height at the 0 point on the measurement wedge shall be the same as the height of the support feet of the straightedge ± 0.2 mm.

4.4 Calibrated wedge B, shall be not less than 200 mm in length and not less than 20 mm in width. It shall be permanently marked on the slope plane in increments of 1 mm and its true height shall be accurate at each marked increment to ± 0.5 mm.

4.5 Calibrated wedge C, shall be $300 \text{ mm} \pm 1$ mm in length and $25 \text{ mm} \pm 1$ mm in width. It shall be accurate at each marked increment to ± 0.1 mm.

5 Procedure

5.1 Type 1 straightedge

5.1.1 The type 1 straightedge shall only be used in conjunction with calibrated wedge A and they shall be permanently marked with the same unique reference.

5.1.2 Ensure that the surface is free from detritus.

5.1.3 Place the straightedge on the surface, perpendicular to the centre line of the rip to measure transverse evenness, or parallel to the centreline to measure longitudinal evenness.

5.1.4 Place the wedge on the surface so that full contact with the surface is obtained. Ensure that the wedge is perpendicular to the measurement edge of the straightedge.

NOTE Measurements may be taken from either side of the straightedge.

5.1.5 Measure the distance between the measurement edge of the straightedge and the surface by inserting the wedge in the gap to refusal and then reading the marked increments on the slope of the wedge.

5.1.6 Record measurements to the nearest 1 mm.

5.1.7 For new surfaces, check conformance to irregularity criteria before trafficking and as soon as practicable after the surface has been laid.

NOTE On occasions it will not be possible to check compliance before trafficking so on these occasions record and report that trafficking had occurred prior to test.

5.2 Type 2 straightedge

5.2.1 The type 2 straightedge shall only be used in conjunction with calibrated wedge B.

5.2.2 Ensure that the surface is free from detritus.

5.2.3 Place the straightedge on the surface, perpendicular to the centre line of the road and bridging the rut to be measured.