



Transport
Roads & Maritime
Services

Test method T183

Surface deviation using a straightedge

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Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
Ed 1/Rev 0	All	New Issue	G Hall	Sep 2009
Ed 1/Rev 1	5(c), (d), (f), (g)	Test of joint, position, convex shape, note added.	J Friedrich	July 2011
Ed 2/ Rev 0	All	Reformatted RMS template	J Friedrich	October 2012

Note that Roads and Maritime Services is hereafter referred to as 'RMS'.

The most recent revision to Test method T183 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

Test method T183

Surface deviation using a straightedge

1. Scope

This test method sets out the procedure for determining the irregularity of a surface using a straightedge.

NOTE: The method was based on MRWA WA 313.2.

2. General

- (a) The surface tested can be any firm surface (e.g. concrete, asphalt, compacted material)
- (b) The maximum deviation under the straightedge is determined using a wedge shaped measuring device
- (c) Unless otherwise specified the length of straightedge (L) shall be 3 m
- (d) The surface under the straightedge shall be sound and free of loose material or protruding objects

3. Apparatus

- (a) A metal straightedge of length $L \pm 0.01$ m that is rigid configuration when set up. The bottom face of the straightedge shall have a width not greater than 25 mm and meet the following requirements:
 - (i) Not deviate by more than ± 1.0 mm when placed on a straight reference
 - (ii) Not sag by more than 1.0 mm when resting on 2 supports located within 25 mm of each end

NOTE: The depth of the straightedge should be at least 50 mm and provide overall rigidity to the apparatus. A thin cable of more than 3 m and suitably tensioned can be used to create a straight reference.

- (b) A single-piece device with the following requirements to measure the deviation under the straightedge:
 - (i) Flat base from 37 to 52 mm wide and length from 135 to 200 mm
 - (ii) An upper face inclined at 1:4.5 (V:H) or less slope to the base with height increments marked on the face starting at 3 mm and then every 1 ± 0.1 mm up to at least 24 mm

NOTE: The RMS "ROCOND" wedge is unsuitable for use with a 3 m straightedge as measurements to the nearest mm are required.

- (c) A 300 mm metal ruler marked in mm
- (d) Broom

4. Preparation

- (a) Ensure that the straightedge has been checked against a straight reference within the previous 3 months
- (b) Visually check that the alignment and the bottom edge appear straight and undamaged. If the bottom edge appears to be out of alignment do not use until it has been corrected

NOTE: Look along the bottom edge from each end to check that it appears straight in all planes.

- (c) Set up the straightedge as a rigid configuration

5. Procedure

- (a) Select a sample site for testing
- (b) Remove any loose material from where the straightedge will be placed
- (c) Place the straightedge upright at the required orientation and with the bottom edge supported on the surface to be tested. Where a joint is to be tested, position one end directly over the joint and the remainder supported on the surface to be tested

NOTE: The orientation is usually longitudinal or transverse to the centreline.

- (d) Adjust the position of the straightedge at the sample site:
 - (i) To be at right angles to a linear feature that is under the straightedge (e.g. joint, edge, tie-in)
 - (ii) Where the cantilever is greater than $L/4$ mm, measure the length of cantilever to the nearest 5 mm
 - (iii) Except where testing a joint minimise the length of straightedge that is cantilevered
- (e) Where a feature is seen to affect the reading, make a suitable note against the sample site in the report (e.g. where a test is on the crown or superelevation of the road)
- (f) Where the surface is convex under the straightedge make a note “CONVEX SHAPE” against the sample site in the report. Proceed to Step 5(i)

NOTE: The straightedge will not be stable and will tend to rock back and forward.

- (g) Insert the wedge until the inclined surface of the wedge and the bottom edge of the straightedge just touch. Position the wedge under the straightedge to measure the maximum deviation

NOTE: The maximum deviation may be under the supported or cantilevered portion of the straightedge.

- (h) Record the maximum deviation (V_{MAX}) indicated on the wedge to the nearest 1 mm
- (i) Move to the next sample site

6. Calculations

There are no calculations.

7. Reporting

Include the following data and results in the report:

- (a) Location of lot or area
- (b) Surface type and layer
- (c) Length (L) of straightedge to the nearest 0.01 m
- (d) Date and time of start and end of testing
- (e) The results tabulated for each lot or area:
 - (i) Test location (e.g. chainage, direction, lane, offset/wheelpath, etc)
 - (ii) Orientation of straight edge relative to centre line
 - (iii) Maximum deviation (V_{MAX}) to the nearest 1 mm
 - (iv) Where the cantilever is greater than $L/4$ mm, the length of cantilever to the nearest 5 mm
 - (v) Notes (e.g. convex shape, linear feature, crown, superelevation, etc)
- (f) Reference to this test method