

AUSTROADS TEST METHOD AG:AM/T001

PAVEMENT ROUGHNESS MEASUREMENT WITH AN INERTIAL LASER PROFILOMETER

COMMENTARY

1 SCOPE

It is important to note that the test method has been prepared for the testing of pavements at the network level. Care should be taken when applying the test method at the project level.

Additional guidance and background information can be found in the *Austrroads Guide to Asset Management – Part 5B: Roughness* (Austrroads 2007).

2 REFERENCED DOCUMENTS

No comment.

3 DEFINITIONS

No comment.

4 EQUIPMENT

No comment.

5 CALIBRATION AND VALIDATION

5.1 Equipment Calibration

5.1.1 *Distance Transducer*

No comment.

5.1.2 *Accelerometers*

No comment.

5.1.3 *Laser Displacement Transducers*

No comment.

5.2 System Validation

Whilst equipment calibration and validation issues are of direct relevance to the survey crew operating the vehicle in the field, it has been presumed that the crew may not be as familiar with contract documentation, including the specification, as they are with the data collection test method. Accordingly, a default list of calibration and validation requirements that must be met in the absence of any form of instruction or specification is included in the test method.

The validation test method AG:AM/T002 contains a procedure that compares the roughness results obtained from the test profilometer system to the results obtained from an independent reference device. The alternative test method, AG:AM/T003, compares the results obtained from the test profilometer to the results obtained from another reference profilometer system.

The test method permits the use of either validation method for the validation of profilometers. If a client wishes to specifically exclude the use of one of the methods, then this should be specified in associated contract documentation.

6 PROCEDURE

6.1 Pre-test Set-up

No comment.

6.2 Operational Validation Procedure ('Bounce Test')

The operation validation procedure, commonly known as the 'bounce' test, is quick and easy to undertake, and provides a ready means of ensuring that the profilometer equipment is behaving in the expected manner.

A base plate used for transducer calibrations should be used when performing a bounce test so as to minimise any roughness measurements that may be obtained due to surface unevenness.

6.3 Profile Survey

When surveying in an urban environment, maintaining an appropriate survey speed and avoiding stopping whilst surveying can be difficult. Therefore, appropriate measures, such as arranging for 'green light' survey runs, should be a priority to minimise the likelihood of the vehicle stopping or falling below the minimum survey speed.

6.4 Factors Affecting the Test

No comment.

7 CALCULATIONS

No comment.

8 REPORTING

Whilst the test method requires that IRI roughness be reported to a precision of 0.01 m/km, this does not reflect the true accuracy and precision of laser profilometers conducting network surveys. Any decisions to be based on collected roughness data (e.g. maintenance intervention levels) should be based upon roughness results rounded to not more than one decimal place.

ANNEX 1 – LASER SAFETY

No comment.

REFERENCES

Austrroads 2007, Guide to asset management – *Part 5B: roughness. AGAM05B/06*, Austrroads, Sydney.

AMENDMENT RECORD

Amendment No.	Sections amended	Action ⁽¹⁾	Date
1 (Initial release)	All (Michael Moffatt, ARRB)	New	26 March 2007
2 (Revised release)	All (Richard Wix, ARRB, project AT1484)	Substitution	2 March 2011
¹ Key: Format change in format Substitution old section removed and replaced with new section New insertion of new section Removed old section removed			

This commentary is relevant to the 2 March 2011 release of Austrroads Test Method AG:AM/T001.