

RC 422.06

Manual of Testing

PAVEMENT ROUGHNESS (ARRB TR Walking Profiler Method)

1. SCOPE

This test method sets out the procedure for measuring the roughness of a pavement expressed in terms of the International Roughness Index (IRI) using the ARRB Walking Profiler which is pushed over the surface by an operator at a slow walking pace.

This method is usually used to provide base measurements for comparison with a multi-point inertial profiler used for measuring pavement roughness.

2. APPARATUS AND PROCEDURE

The test shall be performed in accordance with Austroads Test Method PAT 01:2001 for each section with the following additions:

- (a) The profiler shall be capable of measuring the longitudinal road surface profile along a wheel path at least every 250 mm with a precision in elevation of at least 0.5 mm operating over a range of wave length of at least 0.5 metre to 50 metres;
- (b) Testing shall not be performed when it is raining or when there is pooled water on the pavement surface;
- (c) Record physical features that may affect the ride quality readings.
- (d) A device for measuring the geographic coordinates of the start and end of survey is required. Record the start and end geographic coordinates of the survey.
- (e) Record significant cross roads, intersections, kilometre marks, reference markers (see VicRoads publication: *A Guide to SRRS Data Collection in the Field*) and other features to enable the location system used to be referenced to the data recorded.
- (f) When providing base measurements for comparison with an inertial laser profiler, the minimum section length shall be 500 m and the single track IRI for the left wheel path need only be measured.

3. CALCULATIONS

Calculate the following:

- (a) The single track IRI using the quarter car model for each wheel path for each 100 m section being tested;
- (b) If required, the lane IRI for each lane for each 100 m section being tested;
- (c) If required, the NAASRA roughness for each lane for each 100 m section being tested using the following equation:

$$\text{NAASRA (counts/km)} = 26.49 (\text{lane IRI}) - 1.27.$$

4. REPORT

Report the following:

- (a) The start and end geographical position of the survey/ road;
- (b) The single track IRI for each wheel path for each 100 m section to the nearest 0.01 m/km - for base line measurements only the single track IRI for the left wheel path is required;
- (c) If required, the lane IRI for each 100 m section to the nearest 0.01 m/km;
- (d) If required, the NAASRA roughness in counts/km to the nearest whole number for each lane for each 100 m section;
- (e) Relevant details as recorded in the procedure 2(c) and 2(e).
- (f) Any additional information as detailed in Austroads Test Method PAT 01:2001.