

# Dynatest

## 5051 Road Surface Profiler (RSP) Mark III

Dynatest Road Surface Profiler (RSP) 5051 Mark III is designed to provide advanced, automated, high quality pavement longitudinal and transverse profile measurements for engineers, construction superintendents, and pavement network managers.

The RSP Mark III is capable of real time continuous highway speed measurements of longitudinal profile, International Roughness Index (IRI), Ride Number (RN), transverse profile, rut depth, macro texture, and road geometrics (crossfall, curvature and gradient), GPS data and digital photo logging.



### Measuring Principle

- The longitudinal profile measurement is based on the “South Dakota” method. An accelerometer is used to obtain vertical vehicle body movement, and a laser sensor is used for measuring the displacement between the vehicle body and the pavement. Road profile measurements are obtained by summing the body movement with the appropriate bodyroad displacements. IRI is calculated in accordance with World Bank guidelines for “Conducting and Calibrating Road Roughness Measurements”
- Transverse profile and rut depth are based on a minimum of 5 lasers
- Road geometrics (crossfall, curvature, and gradient) can be measured by adding an Inertial Motion Sensor (IMS)
- The RSP modular design allows for easy upgrades up to 21 lasers (three of which can be optionally macrotexture lasers), 2 accelerometers, and one inertial motion sensor
- Measurements referenced to linear chainage and Differential Geographical Position System (DGPS)
- Real-time profile data calculation and storage
- Optional GPS and digital photo logging can be stored with profiler measurement data
- Optional texture lasers can be used to collect real-time Mean Profile Depth (MPD) macro texture
- Optional 100 mm line lasers improve profile measurements on textured surfaces
- Solid Construction with corrosion resistant and durable materials— providing long term performance and low maintenance cost of the unit

### Compliance with Industry Standards

- AASHTO R 56-14 “Standard Practice for Certification of Inertial Profiling Systems”
- ASTM E950/E950M-09 “Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference”. The RSP III meets the Class 1 precision and bias specifications
- TxDOT Tex-1001-S “Test Procedure for Operating Inertial Profilers and Evaluating Pavement Profiles”

### Key Features

- The most accurate, reliable, and long term calibration stability of any profiler on the market
- Unique “Stop & Go” feature permits IRI and RN data to be collected in urban areas within traffic

### Advantages

- The “Stop & Go” feature allows IRI measurements to be taken at all traffic speeds, allowing testing at junctions, traffic lights, roundabouts and testing of short sections where it is difficult to gain enough speed, or when it is not possible to do a pre-section
- 5G accelerometers that provide a very high precision of 0.01G
- Graphical real-time display of the IRI, RN, laser elevations, inertial profile, macrotexture, and photologging
- Step by step, on screen help with calibration procedures allowing in-field calibration
- Built-in analysis software reporting IRI, PI, RN and marking bumps/ dips, scallops/must-grinds with the option to leave out sections

**[www.dynatest.com](http://www.dynatest.com)**

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**Learn more about the RSP**

