

भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(पोत परिवहन, सड़क परिवहन और राजमार्ग मंत्रालय)
National Highways Authority of India
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No.: 11041/218/2007-Admn.

03.11.2009

POLICY MATTERS – TECHNICAL (37/2009)
(Decision taken on JIC Division File No. NHA/Tech/TIC/genl/2009)

Sub: Use of Laser Profilometer in NHA Works

MOST Specifications Fourth Edition under section 902 provides for control of alignment, level and surface regularity, which are suggested to be measured manually on grids of 6.25m x 3.5 m.

2. Presently, 5th Wheel Bump Integrator is being used for evaluating the road surface and the roughness is measured in mm per Km.

3. Integrated vehicle mounted Laser Profilometer System is being used extensively worldwide. A Laser Profilometer confirming to ASTM E 950 Class I specifications (as under) or equivalent is allowed to be used in NHA projects. However the output shall also be made available for Unevenness Index (UI) to meet the requirement of IRC: SP: 16-2004 in addition to International Roughness Index (IRI).

Item wise Detailed Technical Specifications for Laser Profilometer are as under:

(a) Pavement Surface Roughness derived from Longitudinal Profile:

- Must Meet ASTM E950 Class I profiler Specifications

o Vertical Measurement Resolution	Less than or equal to 0.1 mm
o Maximum Recorded Interval:	Less than or equal to 25mm
o Measuring Range:	±100 mm
o Standoff (ground clearance):	≥300mm

- **Output: International Roughness Index (m/km) i.e. Right IRI and Left IRI, Average IRI and Lane IRI, accumulated at the user's defined intervals.**

- Measuring system should be placed within the width of Survey Vehicle

(b) Rut Depth derived from Transverse Profile:

- Rut Depth (height) Accuracy: Less than or equal to ±1mm
- Number of Sensors: 5 or 11 or 13 or Scanning Laser Type (based on the level of Transverse etc. Resolution)
- Output: Rut Depth in mm i.e. Minimum rut depth, Maximum rut depth and Average rut depth in the lane at user's defined intervals.
- Measuring system should be placed within the width of survey vehicle

K. V. S.

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(c). **Pavement Macrottexture in terms of Mean Profile Depth:**

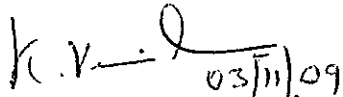
- Must Meet ASTM E1845 Specifications
 - Vertical Resolution: 0.05mm
 - Maximum Spot size; 1 mm
 - Minimum Interval of Profile sampling Not more than 1 mm

- Output: Macro texture in mm on wheel path accumulated at user's defined intervals.

4. The Laser Profilometer may be used in all ongoing projects.

5. Accordingly, the provision in RFP for appointment of Consultants, IC/bid documents for related works should be made.

6. This issues with the approval of Competent Authority.


(K. Venkata Ramana)
General Manager (Coord.)

To:

1. PS to Chairman
2. PS to All Members
3. PS to All CGMs/CVO
4. All GMs/DGMs/Managers
5. All PIUs/CMUs/SPVs
6. Librarian/Hindi Officer