**AASHTO Technology Implementation Group**

**Nomination of Technology Ready for Implementation**

**2005 NOMINATIONS DUE BY FRIDAY, SEPTEMBER 9, 2005**

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| **Sponsoring DOT** | 1. Sponsoring DOT (State): Missouri |
| **Primary Technical Contact** | 2. Name: John Wenxlick, P.E.<br>Organization: Missouri DOT<br>Address: P.O. Box 270<br>City: Jefferson City State: MO Zipcode: 65102<br>E-mail: john.wenzlick@modot.mo.gov Phone: 573 751-1039 Fax: 573 526-4337 |
| **Technology Description** | 3. Name of Technology:<br>Digital Surface Roughness Meter (Laser Profilometer) |
| | 4. Briefly describe the technology.<br>This is a field instrument that uses the principle of laser striping to measure the surface roughness of concrete and steel substrates. Surface profiles are illuminated by the laser lines, and these are imaged using the embedded camera, and transmitted to a laptop computer using wireless video transmission. The image in the computer is analyzed, and surface roughness characteristics are reported. The instrument is the first of its kind to provide a scientific record of surface roughness critical for quality control and inspection. |
| | 5. Briefly describe the history of its development.<br>This technology was originally developed by researchers at the University of Missouri-Rolla, funded by the Center of Infrastructure Engineering Studies and its University Transportation Center, and the American Concrete Research Institute. Field testing and calibration was undertaken in projects funded by the Missouri Department of Transportation. The technology has been licensed to Magana Instruments Inc., and is now commercially available. |
| **State of Development** | 6. For how long and in approximately how many applications has your organization used this technology?<br>This technology has been used over the past three years to characterize the effectiveness of sandblasting on concrete surface preparation of bridge superstructures. In this instance, the concrete surface was to be prepared for the adhesion of Fiber Reinforced Polymer (FPR) laminates for flexural and shear capacity upgrades. |
| | 7. What additional development is necessary to enable routine deployment of the technology?<br>None |
| | 8. Have other organizations used this technology? If so, please list organization names and contacts.<br>Organization: Dugussa Construction Material (Switzerland) Name: Philipp Widmer Phone: +41 1 438 23 72 E-mail: philipp.widmer@degussa.com |
| **Potential for Payoff** | 9. What benefits has your organization realized from using this technology? Include cost savings, safety improvements, transportation efficiency or effectiveness, environmental benefits, or other advantages over other existing technologies.<br>Quality control and a record of quality control on surface preparation and optimum bonding of the FRP materials, leading to stronger and longer lasting repairs. |
| **Implementation Potential** | 10. Please describe what actions another transportation agency would need to take to adopt this technology.<br>The technology is ready for deployment. No research investments are necessary. |

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| | 11. What is the estimated cost, effort, and length of time required for procurement or adoption by another transportation agency?<br>The Digital Surface Roughness Meter can be purchased for $15,000 and immediately used by contractors, engineers, and inspectors for field application. |
| | 12. What organization(s) currently supply and provide technical support for this technology?<br>Magana Instruments Inc.<br>12255 Cedar Grove<br>Rolla MO, 65401<br>http://www.magana-instruments.com |
| | 13. Please describe any legal, regulatory, social, intellectual property, or other issues that could affect ease of implementation.<br>None |
| **Willingness to Champion** | 14. Is the sponsoring DOT willing to promote this technology to other states, if partially supported by the AASHTO Task Force on Technology Implementation? ☒ Yes ☐ No |
| **Date Submitted** | 15. Date: September 8, 2005 |

16. Please include image(s) of sketches or photographs, if available ☒Image(s) are attached.*

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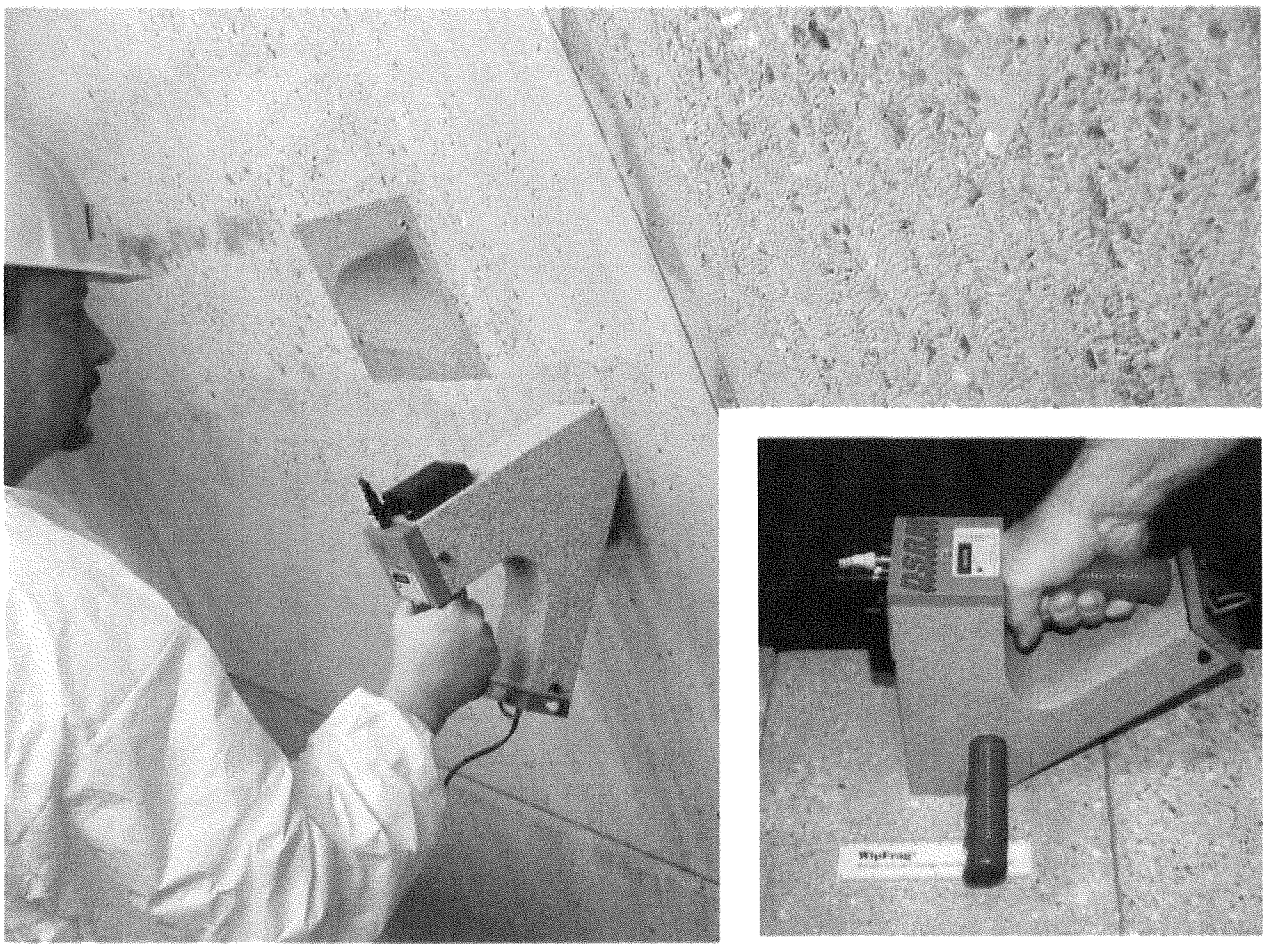
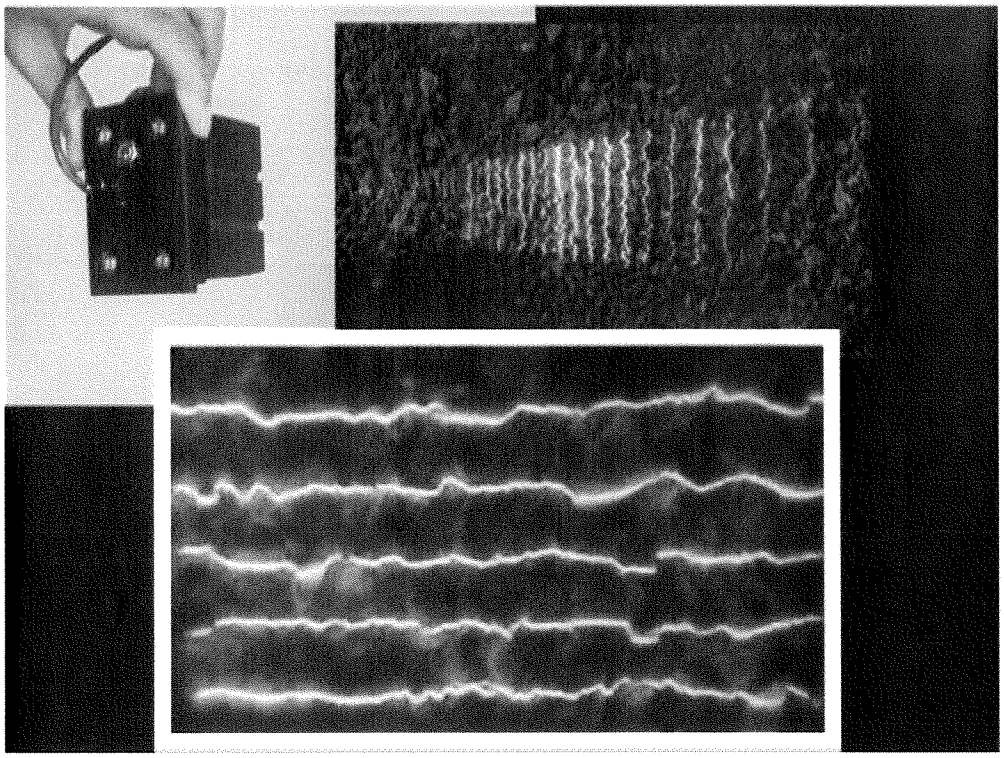
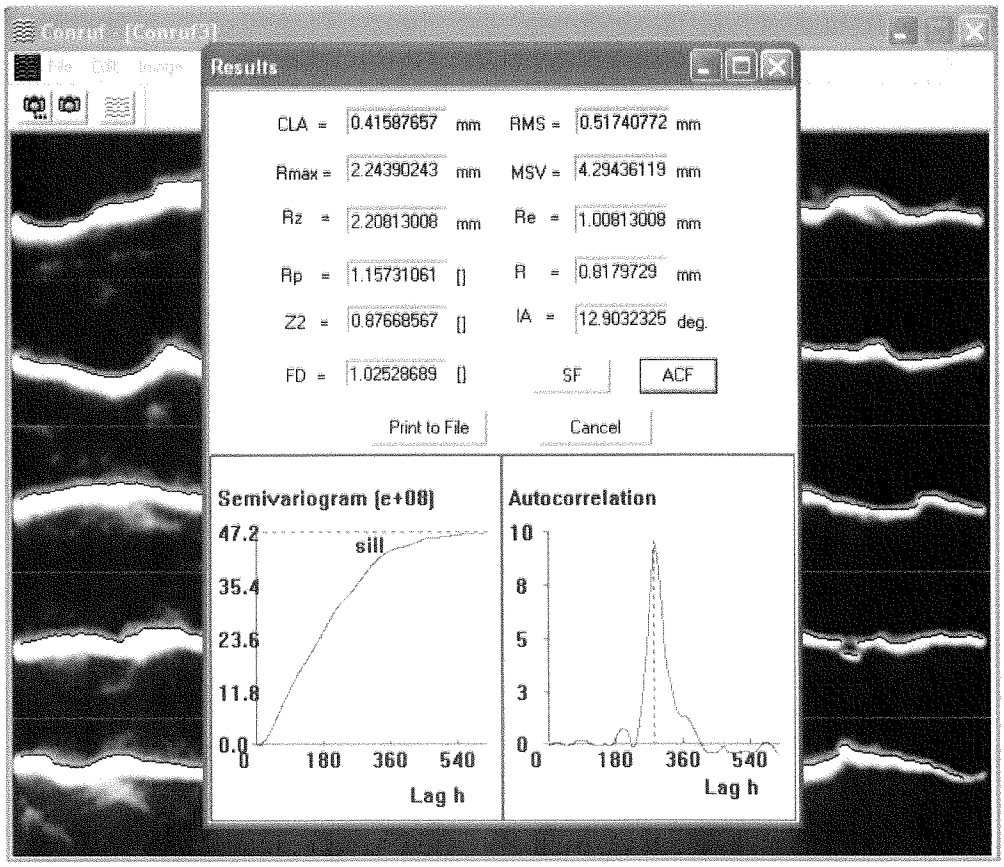
| **AASHTO CONTACT** | MARTY VITALE | PHONE: 202.624.5862 |
| | ADMINISTRATIVE COORDINATOR FOR ENGINEERING | FAX: 202.624.5469 |
| | AASHTO | mvitale@aashto.org |



**The DSRM (Laser Profilometer) is a field (or laboratory) instrument to measure concrete surface roughness.**






**The DSRM uses 5 laser lines to produce surface profiles, imaging them and analyzing them to generate surface roughness measures.**