TWO ROUNDS OF SKID RESISTANCE TESTING COMPLETED DURING FIRST HALF OF PROJECT

ROSANNE (standing for ROlling resistance, Skid resistance, ANd Noise Emission measurement standards for road surfaces) is a 36-month FP7 project which started on 1st November 2013 and aims at developing/harmonising measurement methods for skid resistance, noise emission and rolling resistance of road pavements as a preparation for standardisation. Controlling these road surface parameters enables road administrations to make a beneficial contribution to making road transport safer and greener.

Currently, the measurement methods and policies vary greatly across Europe, leading to the situation that while their importance is recognised, the exchange of expertise and good practice among EU countries faces considerable barriers. Ultimately this leads to barriers facing companies that wish to trade in more than one country due to the difficulties in interpreting the technical requirements for the provision of goods and services, and the inefficiency of requiring different physical equipment for making measurements. The project follows the recommendations of key predecessor projects TYROSAFE (tyrosafe.fehrl.org), HERMES (www.hermesroadmeasurement.eu), SILVIA (www.trl.co.uk/Silvia), SILENCE (www.silence-ip.org) and MIRIAM (Miriam-co2.net) and considers ongoing work in CEN and ISO.

For skid resistance, many European countries have established thresholds for pavement acceptance and routine monitoring that are linked to devices that originated from national development and many years' experience of the performance of pavement materials. Past work has led to proposals for harmonisation of measurements from European skid resistance devices, but so far it has not been possible to establish an algorithm that brings the measurements from all the different devices into a common scale with sufficient accuracy. The lack of accuracy is a particular concern for the control and acceptance of newly constructed pavements against contractual specifications and warranty terms.

The TYROSAFE project (Roe et al, 2009) concluded that, with the large number of different devices operating on various principles and with different responses to the variation in road and test conditions, it would be difficult to achieve a common scale that accommodates all devices in all conditions and still obtains a sufficient accuracy. However, an acceptable accuracy might be achievable if restrictions are placed on the range and types of devices in combination with their operating principles and conditions. TYROSAFE produced a roadmap that described different approaches to achieving this.

Building on this earlier work, the ROSANNE project has proposed that a possible way to achieve an acceptable accuracy is to develop a common scale for each of at least two different groups of devices based on their substantially different operating principles. The proposed groups are devices measuring a

side-force friction coefficient and those measuring longitudinal friction, with a possible further subdivision into devices operating with either a low or high slip ratio. This approach also enables different measurement classes to be introduced, associated with achieving different levels of accuracy. Moreover, it was proposed to organise round robin tests between some European friction devices to establish the feasibilty of a common scale for each group of devices. Two experimental campaigns were proposed: the first one to build the common scale and the second one to check its stability over time and with other friction devices. The first campaign was held in May 2014 in Nantes in France on project partner IFSTTAR's test tracks and trafficked roads around the IFSTTAR facility. To limit the differences due to seasonal variations, the tests were carried out on two consecutive weeks; one week for devices measuring longitudinal friction coefficient and another week for devices measuring side-force friction coefficient.

A total of six longitudinal and five side-force devices took part in this 2014 test programme; the devices were available to the consortium and included a reasonable number of the 15 different device types available in Europe, particularly those that are in common use. The complete test programme allowed for calibration of the common scale over a range of skid resistance levels and a test of its robustness on surface types and measurement conditions that are representative of the roads in Europe. Analysis of the data from the first round of tests has shown that, within each of the device groups, measurements made by different devices can be converted to a common scale with a reasonably good level of accuracy.

The second campaign was held in April 2015 at the same location. The same general organisation was applied with two consecutive weeks of trials, but one main difference with the first campaign was that the trials were open to a limited number of new devices. An invitation was sent to key organisations across Europe and many requests to participate in the trials were received. However for operational reasons the number of devices participating in each week had to be restricted to a maximum of 10. The results are now being analysed and will be presented in a later issue of this magazine.

▶ For more information, go to **www.rosanne-project.eu** or contact Manfred Haider at **manfred.haider@ait.ac.at**.

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