

ERPUG measurement vehicle evaluation 2024 in Cologne

For next year's ERPUG conference in Cologne, 2024, we are looking for sponsors to be able to carry out a test of measurement vehicles. In the survey for the evaluation of the ERPUG conference in Scotland 2022, we received a large number of positive responses to the question whether there was an interest in the ERPUG team organizing a test in connection with a future conference. With this positive response, we intend to test traditional road surface measurement vehicles and newer technologies such as LIDAR-based measurement but also data from connected vehicles.

Roads are one of the most important infrastructure in our society. Regardless of whether a vehicle have two or four wheels, is connected, is electric or powered by fossil fuel, well-functioning roads are always needed. The amount of money that has been and is put in every year to maintain and improve the standard of the road network is very large. In Sweden only, about €300 million is spent on the maintenance of paved roads per year. Considering this, it is of great importance that decisions and prioritization of the road management are based on objective, relevant and correct data with known accuracy. Knowledge of the road surface condition and its deterioration is the most important information to be successful in this work. Therefore, known quality from measurements are needed, since we want roads to be safe, comfortable, and long lasting and designed and built to be used for many years.

This implies that we need to know what quality and what margins of error we can expect when using data, especially when doing forecasts and planning of forthcoming maintenance. Data can be of different quality but might still be used if it is of sufficient quality for the purpose. The key is to know the quality of the data and what quality is needed. The introduction of Big Data further increases the need for data quality control.

In the late 1990s, a project, FILTER (FEHRL Investigation on Longitudinal and Transverse Evenness of Roads), was carried out under the auspices of FEHRL. The test brought together a large part of Europe's road surface measurement equipment to be tested and compared to each other on test sections with different road conditions ([DiVA-report](#)). The evaluation was financed by funds from the road authorities. It has now been almost 25 years since these tests were carried out. Unfortunately, the results from FILTER are still a source of information when doing related standards today, even though systems have evolved considerably, giving more and more accurate data and capabilities of more variables. Using the new capabilities will of course save money by giving an accurate and more complete description of the condition of the road surface for maintenance planning.

Before the ERPUG conference the 16-18 October 2024 in Cologne, companies and manufacturers that perform road surface condition and other relevant measurements, like LIDAR and supplier of connected vehicle data will be invited to have an opportunity to check their accuracy, validity and repeatability. To be able to determine the validity, test sections will be measured with dedicated and accurate reference equipment's. BAST (Federal Highway Research Institute) operates a test facility, duraBAST, just outside Cologne, which will be the base for the tests. ERPUG's own funds can finance a part of the event, but for the remaining part, we are looking for financiers. DuraBAST will provide the test track free of charge, for which we are extremely grateful. This gives us good opportunities to plan the project further.

The variables we plan to investigate are as follows,

- Transverse unevenness, rut depth, etc.
- Longitudinal unevenness, IRI, etc.
- Texture, Mean Profile Depth (MPD) and megatexture
- Geometric variables, cross slope, hilliness, (curvature)
- Positioning of objects in the road area (Lidar-based test)
- Lane width detection (distance between road markings)
- Wide Cross-Profile Detection (Lidar-Based Test)
- Position (coordinates)
- Cracks (to be examined if possible)

The benefits we see with the test are,

For the road authorities

- The road authorities will have an objective and good control of the accuracy of what different categories of operators can perform.
- The results can be used to establish national criteria or requirements for the accuracy that can be required in the procurement of measurement suppliers.
- European standards can be updated to meet today's measurement systems.
- The results can be used to gain knowledge about and test variables that are not yet collected in the national inventory.
- Increased level of knowledge within the organization.

For the manufacturers and measurement providers

- The measurement provider gets good control of the accuracy of their own equipment in relation to similar equipments.
- Gain knowledge about other vendors' ability to collect different variables and with what accuracy data can be collected.
- Benchmark test of the own equipment.
- Independent information to be used for marketing.
- Direct knowledge to update and correct their systems.

This is a call for support for the remaining funding. We need the extra funding to be able to carry on the planning of the experiment. We are now searching for sponsors funding according to the categories below:

For Transport Administrations – sponsor level €5,000.

For measurement providers and manufacturers – sponsor level €1,000.

At the ERPUG conference in Athens, preliminary information will be given about the planned tests at duraBAST. We will provide more information and we will be extremely happy to present **you** as a sponsor on this occasion.

If you intend to sponsor the event or have questions, please contact Thomas Lundberg, thomas.lundberg@vti.se, Leif Sjögren leif.sjogren@vti.se or Roger Möller roger.moller@ramboll.se.

The ERPUG Team