

TRAFFIC SPEED DEFLECTOMETER (TSD)

One drive. Multiple data sources. A more complete understanding of your road network

Greenwood TSD – the Traffic Speed Deflectometer is a well proven Rolling Wheel Deflectometer measuring pavement response to applied load. The TSD technology is developed by Greenwood Engineering and has initiated a paradigm shift in pavement engineering worldwide.

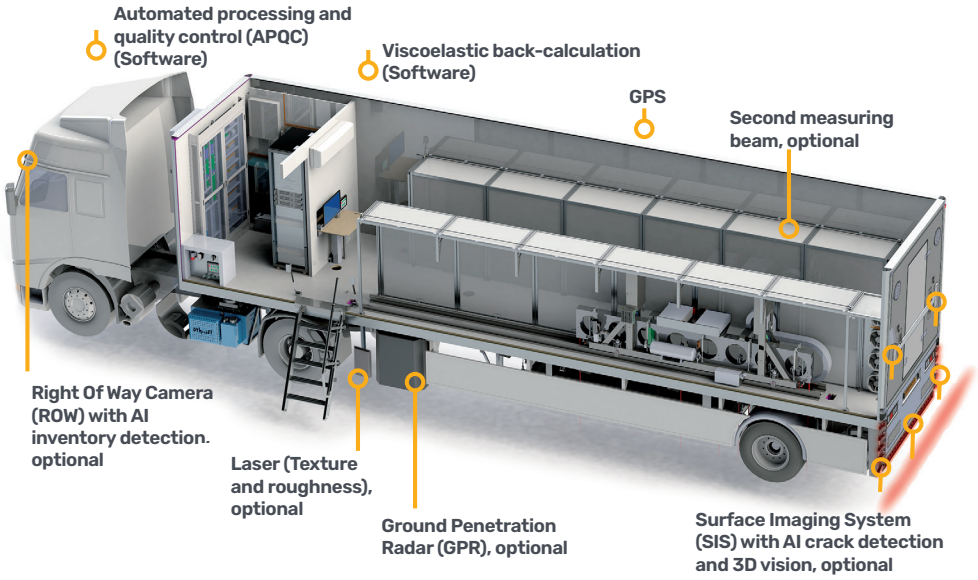
Greenwood TSD provides continuous bearing capacity results at project and network level while following the flow of traffic. The TSD includes 1 or 2 systems of high freqency (250 kHz) Doppler lasers, each with up to 16 heads, measuring in the longitudinal centreline between the rear twin wheels with lasers behind and in front of the load axle. The standard configuration can be supplied with custom made solutions for even more structural or functional data. This makes each Greenwood TSD highly cost effective.

Technical Description

- 11 - 16 doppler sensors in 5th gen. beam configuration sample slopes along the longitudinal centreline between the rear twin wheels at 250 kHz for centimeter resolution measurements at full driving speed
- Trailer designed as pavement measurement laboratory with synchronous measurement of GPR, response and strains, longitudinal and transversal profiles, macro texture, surface cracking and ambient conditions
- Servo system and inertial units continuously monitor and control the position of the Doppler sensors
- Measurement nodes on the modular 5th gen. TSD architecture include Beams, GPR, ROW, SIS, 3D Vision with support for adding custom nodes

Data on:

- Deflections / slopes / curvature / strenghts
- Derived Structural indices: SCI_{300} / SCI_{TSD}
- Concrete joints, cracks and load transfer
- Pavement layer thicknesses
- Strains and e-moduli
- Cracks and classification
- Profiling, rutting, macro and mega texture
- Quality Control on all measurement nodes
- Open Data – No vendor locking

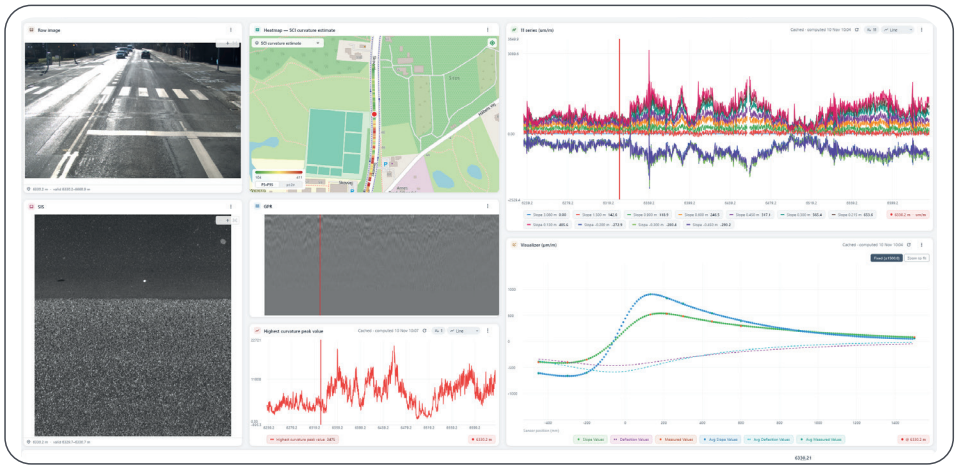


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Complete Software Suite – Open Data

The TSD has a complete software suite supporting pre- on- and post-mission tasks. Calibration, configuration, pre-flight check, live measurement dashboards, automatic quality control, interactive data analysis with a comprehensive library of calculations. Use the open data format to add your own calculations.

Inspect precisely correlates all your selected datasources.



Data Example

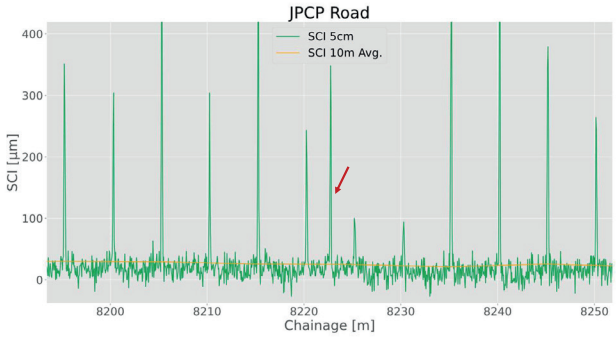
The inspect-screen above shows interactive inspection of a measurement, with ROW, SCI-300-heatmap, velocities, deflection- and slope curves, surface images for crack detection and classification and GPR for layer- and artifact detection.

Output example

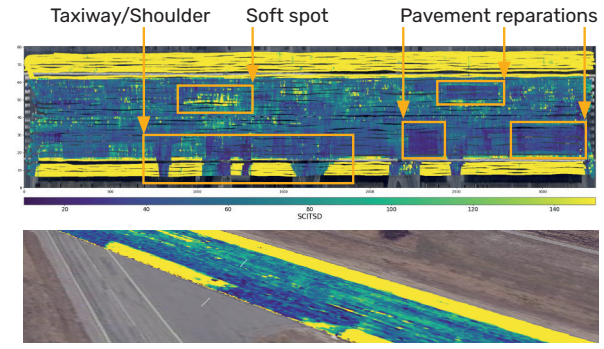
Select from more than 180 predefined output columns or add you own output-components so the full processed measurement can be automatically integrated into your downstream analysis, reporting or pavement management system.

Quality & High Resolution

Quality control is applied immediately to the measurements. This reduces the risk of costly repeat surveys and increases confidence in the results. High-resolution measurement captures small changes in pavement response, including on stiff roads and concrete pavements. This level of detail also supports structural assessment of airport taxiways and runways.



Identify concrete slaps and even cracked plates.



SCITSD map from an international airport.

Features

- Synchronized data from multiple measurement nodes incl. bearing capacity, layer thickness, profiling, crack detection and macro texture. Results are repeatable and reproducible
- High resolution allows measurement on stiff roads, concrete as well as taxi- and runways in airports
- On-board quality control of all measurement systems
- High resolution source data – report in any interval from 2,5 cm and up (project and network level)
- Viscoelastic back-calculation of e-moduli and strains
- High measuring capacity (low cost per measured km)
- Replaceable ballast load allowing for measurements at various load levels
- Pre- On- and Post-mission software included
- AI-models trained for layer detection in GPR-data and crack detection and classification in SIS-data
- Replaceable ballast load allowing for measurements at various load levels

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For more infomation, please contact: Mail: sales@greenwood.dk